

Fort Mifflin
Mud Island
Marine and Penrose Ferry Road
Philadelphia
Philadelphia County
Pennsylvania

HABS No. PA-1225

HABS
PA
51-PHILA,
III-

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA
REDUCED COPIES OF MEASURED DRAWINGS

Historic American Buildings Survey
Office of Archeology and Historic Preservation
National Park Service
Department of the Interior
Washington, D.C. 20240

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(continued from previous volume)

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FORT MIFFLIN

Location: Mud Island, Marine and Penrose Ferry Roads, Philadelphia, Philadelphia County, Pennsylvania.

USGS Philadelphia and Vicinity-West Quadrangle, Universal Transverse Mercator Coordinates: 18.481767.4413464.

Present Owner: City of Philadelphia.

Present Use: Historic site museum.

Significance: Fort Mifflin served as the primary fortification for the Americans in their blockade of British-occupied Philadelphia in 1777. Nearly destroyed in the British siege, Fort Mifflin was rebuilt as the first fortification undertaken by the United States. After the construction of Fort Delaware in 1820, Fort Mifflin was relegated to secondary status, but survives as a fine example of colonial stone masonry construction, as well as early nineteenth-century military architecture.

PART I. HISTORICAL INFORMATION

Fort Mifflin was designed in 1771 by John Montresor, a British military engineer. Construction was halted in 1774, then resumed by the Americans when they occupied the fort in 1775. The fort featured demibastioned ramparts on two sides, stockades on the other two sides, ditches and wolf pits outside the walls, blockhouses at three corners, and four buildings within the walls. During the siege by the British in November, 1777, the fort was heavily bombarded and nearly all buildings were destroyed. Montresor's stone wall on the southeast and southwest sides, designed to protect the chevaux de frise planted in the river, survives from this period.

The Americans re-occupied the fort after the British evacuated in 1778, and some repairs were authorized by the State of Pennsylvania. General Louis du Portail developed a plan that retained the demibastions of the stone ramparts, enclosed the other two sides with brick ramparts and one demibastion, and placed bastions at two corners. Construction on this was begun immediately, but it tapered off after 1780. In 1794, the United States government assumed responsibility for the repairs to the fortification, directed first by Pierre Charles L'Enfant. He was replaced briefly by Lt. Col. Stephen Rochefontaine in 1795, and in 1797 Maj. Louis Tousard assumed command. Du Portail's scheme was completed, as surviving stone work was repaired and brick walls constructed on the other two sides. Three gateways, or sally ports, were provided where previously there had been none. Casemates, or bomb-proof chambers, were built under the east bastion, as well as guard rooms at the northeast and northwest sally ports. Most of this work was done by 1798, when Maj. Tousard had datestones set in the northeast and southeast sally ports. On June 28, 1800, Tousard wrote to his successor on the site, Capt. Theodore Memminger, requesting specific information about "The Gate way, the parapet and rampart of the unfinished Bastion...." (Letterbook of Anne Louis de Tousard). Jonathan Williams noted in 1802 that the southeast sally port was incomplete (RG 77, NAB), and in 1807 he wrote: "Gate in a very imperfect State. The arch above never having been covered is beginning to decay, and the piers at the side are carried but two thirds up" (May 20, 1807, Buell Collection M417, 1/110-112, RG 77, NAB). These piers remain unfinished. Ashlar still extends only two-thirds of the height; it was later topped with brick.

There are also batteries outside of the escarpment. L'Enfant began construction of a water battery extending into the river on the southeast side, just outside the southeast sally port. By 1802 this battery was mounted with eight eighteen-pound guns (Jonathan Williams, RG 77, NAB). In 1807 Williams said the water battery was in a ruinous state, "totally uncovered in its rear, and exposed to the whole reach of the River." He suggested an annex, indicated on the accompanying drawing (CGM #61) by a dotted line, making it a demilune (May 20, 1807, Buell Collection, M417, 1/110-112, RG 77, NAB). This was apparently done by 1815 (CGM #64). By September 26, 1862, the parapets of the demilune had been replaced with brick and completed with flagstone (Brewerton to Totten, RG 77, NAB). During the 1870s, magazines were built in the demilune.

In 1871, construction of a detached battery, called the High Battery, was begun. Located southwest of the main fortification, it was unfinished in 1875, when new construction was halted. The 1901 "State of Armament" shows this battery still unfinished, as well as the Mortar Battery just north of it (CGM #130).

For additional information, see Fort Mifflin History (PA-1225).

Prepared by Alison K. Hoagland
Historian
Historic American Buildings
Survey
Fall, 1979

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural character: Fort Mifflin, generally a "star fort" plan is situated on what was once a distinct island and is now part of the Delaware River shore line. The fabric of the fort is in good condition. Discounting the demibastions and bastions of the escarpment, it is basically pentagonal with the major axis extending about 530 feet. Facing up river (northeast), the upper scarp of the fort consists of a broad curtain which is flanked by a bastion at either end and is centered with a sally port. At the opposite end, the downstream (southwest) scarp wall consists of a salient angle forming a demibastion with curtains flanking either side. The southeast scarp wall, which is exposed to the river, is constructed with three demibastions. On the easternmost segment of this wall adjoining the east bastion is a southeast sally port which is masked by the bastion. The northwest scarp wall is similar to the southwest scarp wall except that the salient angle of the demibastion is smaller and the flanking curtains are much longer. Near the southwest end of this scarp is a third sally port

which also functions as a postern. The pattern of the salient angle demibastions gave a broad range of fire from the gun emplacements and at the same time provided a deflective angle attacking river ordnance. Hence, the majority of the gun emplacements, or barbettes, face southeast and southwest towards the river.

2. Condition of fabric: Good.

B. Description of Exterior:

1. Over-all dimensions: Approximately 530' x 430'
2. Foundations: Stone and brick masonry, probably on wood pilings.
3. Wall construction, finish and color:
Typically a section through the rampart from the exterior to the interior includes the moat which is 20' to 25' feet wide, several feet deep, and completely surrounds the fort. Across the moat, the counterscarp is earth and is protected from the river currents on the south by a sloped brick river wall. No covered way or glacis exists outside the moat. Eroded earth berm work separates the moat from much of the escarpment of the enceinte. Generally, the southwest and southeast battered scarp, 11' to 12' high, is constructed of dressed gneiss stones laid in regular, approximately 12" high courses, which project as quoins at each exterior angle. Particularly at the east bastion and elsewhere along the scarp, the stone has been patched to the height of the rampart with red brick laid in Flemish bond. The northwest and northeast scarp is constructed of similar brickwork with flush stone quoining. Typically a molded gneiss torus, or convex cordon extends around the top of the scarp. At the east bastion the cordon is heightened with additional Flemish bond brickwork and completed with a plain stone cap. An earth rampart rises 3'-3" above the cordon and extends nearly 20' to the

approximately 4'-0" high common bond brick parapet which has slate slabs set on edge with wooden revetments. From the base of the parapet extends the relatively flat earth terreplein which is continuous around the parapet and 10' to 11' above the parade. Gun emplacements are fixed upon the terreplein, where ordnance muzzles reached just above the height of the parapet. Typically the emplacements have stone bases supporting pintle blocks and stone gun traverses which form an arc in plan. The interior slope of the rampart, which is earth, extends down from the terreplein to the parade, generally at a pitch of about 1:2. The approximately two-acre parade is level and has access through the rampart within the sally ports.

4. Structural system: Masonry bearing walls.
5. Chimneys: Brick chimneys or vents with beveled stone caps are located above the Northwest and Northeast Sally Port guard rooms, on the east bastion, and on the center demibastion of the southeast terreplein.
6. Openings:
 - a. Doorways and doors:

(1) The Northeast Sally Port, at the head of a walk paved in brick laid in a herringbone pattern which extends to the earth causeway across the moat, is set in a pavilion which has a semicircular arch, two stretchers in depth, set with gneiss impost blocks and a keystone. The opening is enclosed with triple thickness vertical boards laminated together with wrought iron rivets and hung with square headed double doors of the same construction. Secured with a head and sill bolt mechanism, each door has massive wrought iron strap hinges with strap pintles. Opening onto the parade, the barrel vault of the sally

port extends through the rampart and is completed with a random ashlar parapet below the terreplein and with brick walls with a stone cap retaining the interior slope of the rampart. The retaining walls are flush with the walls of the vault which, at the parade, have a rectangular marble date stone used as a keystone in the arch inscribed:

ER. A.D. M.DCCXCVIII.

JOHN ADAMS. P. U.S.

JAMES Mc. HENRY Sry OF WAR

on the Plan of Major Lewis Tousard

(2) At the Northwest Sally Port or postern is a similar pavilion and archway with double doors. Here, however, the keystone of the archway extends to the cordon. The barrel vaulted passage, paved in slate, extends through the rampart and also has an ashlar parapet at the terreplein, though the retaining walls at the interior slope are constructed of random ashlar and are stepped longitudinally.

(3) Masked by the east bastion, the Southeast Sally Port is the traditional main entrance to the parade. At the scarp, projecting rusticated piers with beveled stones flank a semielliptical brick arch constructed a stretcher in depth below a rowlock course and a projecting course. Above the stone piers are brick piers flanking the walling over the archway. The terreplein becomes a narrow bridge over the sally port which opens directly into the parade. The interior slope of the rampart is retained by the entrance structure of the casemates of the east bastion and by a wall with stepped brick buttresses. Facing the parade, the sally port's splayed semielliptical arch, three rowlock courses in depth

and set with a second date stone, has stone quoining at the splayed jambs. The archway is enclosed with similar vertical boarding hung with square headed double doors with typical hardware. Directly inside the sally port is a large gneiss stone block cut in a cavetto profile forming a flag pole base. Opening into the casemates are two semicircular arched doorways at right angles to each other. On the wall plane with the sally port, a taller, narrow doorway, which originally had a board door hung with strap hinges, is boarded up, while the second doorway has a pair of strap iron gates hung with strap hinges on driven pintles.

- b. Windows: Embrasures, or loopholes, in the brick scarp masonry are typically six courses high and approximately a header in width. The interior reveals of the embrasures, which are spaced in upper and lower ranks, particularly at the sally port guard rooms and at the casemates of the east bastion, are splayed. Adjacent to the casemate doorways at the parade, a rectangular window opening has iron bars, turned diagonally, set into the flush stone lintel and sill.

- 7. Roof: As seen in the 1868 drawings of the fort, the casemates had an exterior slope and a superior slope of the earth rampart, which has weathered down to an earth mound. Within the rampart of the east bastion, the terreplein also roofs the inner spaces.

Description of Interior:

- 1. Guard rooms:

- a. Floor plan: The guard rooms flanking the Northwest and Northeast Sally Ports are each an approximately 9'-8" x 17'-0" single space.

- b. Flooring: Concrete and brick paving (herringbone pattern)
 - c. Wall and ceiling finish: Stone masonry extends to the spring line of brick barrel vaulting. The interiors are whitewashed.
 - d. Doorways and doors: Opening into each guard room from the sally ports are semicircular arched doorways. Each is filled with vertical boarding set with square-headed, beaded, vertical board doors.
 - e. Hardware: The doors are hung on heavy wrought iron strap hinges with strap pintles.
 - f. Heating and lighting: End fireplaces, with chimneys extending through the terreplein, heated the guard rooms. Typically the projecting fireboxes with flat arches have exposed brick flues.
2. Casemates:
- a. Floor plan: Constructed within the pentagonal east bastion are various spaces which are basically elongated trapezoids in plan. Three large spaces enclose an L-shaped corridor and three narrow rooms, all of which have two ranks of splayed embrasures in the outside walls.
 - b. Flooring: The corridor is paved with brick laid in running bond and the casemates have compacted earth.
 - c. Wall and ceiling finish: The spaces typically have stone masonry to the spring lines of the brick barrel vaults. The interiors have been whitewashed.

- d. Doorways and doors: Board doors, fabricated from vertical and horizontal boards, remain at several of the semicircular arched openings into the casemates from the corridor.
 - e. Special features: In the larger spaces opening into the corridor are deteriorated Civil War bunk bedsteads constructed of large, square section corner posts, narrow side rails, and wide foot and head boards.
 - f. Hardware: The surviving board doors are hung with wrought iron strap hinges with pintles driven into the masonry of the openings.
 - g. Heating and lighting: Each of the large spaces opening into the corridor has a fireplace built into each end near the doorway. Typically the brick fireboxes are segmentally arched and have exposed flues. In the large space opening directly from the parade, two bake ovens are located in the end of the room within an offcenter, segmentally arched recess. Each segmentally arched opening of the ovens, which have flat, brick domes, is centered over a large segmentally arched firebox opening.
- D. Site and Surroundings: There are two means of access across the moat which completely surrounds the fort. An earthwork causeway extends to the Northeast Sally Port and a wooden bridge spans the moat at the Southeast Sally Port. Neither the causeway nor the bridge is original. The moat is connected to the Delaware River by means of a sluice near the south end of the fort. A water battery, underground magazines, and an above ground brick magazine lie outside the moat to the southeast of the fort forming a demilune, the point of which extends to a wharf on the river. Post-Civil War redoubts, or the high battery, underground magazines, a mortar battery, and mortar

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magazines lie outside the moat to the west of the fort. Both the water and the high batteries are adjacent to and parallel to the river. A low stone tenaille is located next to the northeast section of the moat, between the two bastions and parallel to the curtain. Some distance to the east of the fort, on the property belonging to the Army Corps of Engineers, is the Hospital (Mess House) (HABS No. PA-1225-I).

Most of the buildings within the fort are peripheral to the parade and lie immediately inside the interior slope of the rampart. The one exception is the Commandant's House (Headquarters) (HABS No. PA-1225-C) which lies near the center of the parade. Moving counter-clockwise from the Northeast Sally Port are the Soldiers' Barracks (HABS No. PA-1225-E), the Officers' Quarters (HABS No. PA-1225-F), the Smith's Shop (HABS No. PA-1225-H), and the Storehouse (Commissary) (HABS No. PA-1225-D). Five earthen ramps cut through the interior slope of the rampart at various locations and provide access to the terreplein from the parade. Two earthen mounds over the East and West Magazines (HABS No. PA-1225-G) are built into the interior slope of the rampart and the terreplein. An open brick channel drainage system runs across portions of the parade. One channel leads to a culvert under the west corner of the rampart which opens into a channel to the moat. A second masonry channel extends into a culvert beneath the southeast rampart to the moat and is in line with the East Magazine. Remains still exist of previous structures within the fort. Immediately to the southeast of the Storehouse are the foundations of the Guard House. Between the Officers' Quarters and the West Magazine are rubble foundations of the earlier magazine structure. Patches of brick paving and foundations southeast of the Commandant's House and the Artillery Shed appear to have been for the shot furnaces located in the 1868 plan of the fort. For more detailed information concerning the buildings, refer to the individual architectural descriptions.

The directional descriptions used herein are based on actual compass readings and not on historical

references to compass points. Historically, northeast was referred to as north, southeast as south, etc. apparently for purposes of convenience since most of the buildings have axes running in northeast-southwest or northwest-southeast directions.

Prepared by Rodd L. Wheaton
Architect
Historic American Buildings
Survey
Spring, 1974

PART III. PROJECT INFORMATION

The Fort Mifflin projects of the Historic American Buildings Survey (HABS) were carried out during the summers of 1969 and 1970 with grants from the Haas Community Funds in cooperation with the Philadelphia Historical Commission, the Independence National Historical Park, and the Shackamaxon Society, Inc. The projects were under the direction of James C. Massey, Chief, HABS. The 1969 survey team was supervised by R. Michael Schneider (Texas A & M University) with student assistant architects Allan H. Steenhusen (Iowa State University), Bruce V.A. Bonacher (Rensselaer Polytechnic Institute), and Malcolm Heard, Jr. (Tulane University). The 1970 survey team was supervised by Allan H. Steenhusen (Iowa State University) with architect Ronald B. Tjerandsen (University of Washington) and student assistant architect John T. Shumate (Carnegie-Mellon University). The drawings were completed in 1971 by HABS architect Allan H. Steenhusen and student assistant architect Tim Wolosz (University of Cincinnati). The drawings were edited in 1972-73 under the direction of John C. Poppeliers, Chief, HABS, by HABS architects Rodd L. Wheaton and John A. Burns with student assistant architect K. Barry Peckham (University of Cincinnati). Historian for the project was A.C. (Gus) Hamblett until 1972. The data was then edited by several members of the HABS staff, including Rodd L. Wheaton, John A. Burns, and Philip Hamp, and completed by Alison K. Hoagland in 1979.

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PREFACE

Philadelphia's Fort Mifflin, a National Historic Landmark, is the only American fortification based on British defense plans remaining from the Revolutionary War period. Designed in 1771 by John Montresor, an English military engineer, the irregular, star-plan fort, which was partially completed by the October-November 1777 siege and "Battle of Fort Mifflin," survives as one of the finest examples of colonial stone masonry construction. Only after all the buildings within the stone and stockade escarpment were destroyed did the beleaguered Continental troops finally evacuate, without surrender, to the Jersey shore. The defense of the upper Delaware River prevented British supplies from reaching the occupied American capital city of Philadelphia before the onset of winter, thus preventing British pursuit of General Washington's troops bivouacked at Valley Forge.

Following the British departure from Philadelphia in mid 1778, first the Commonwealth of Pennsylvania and then the United States began to rebuild and rearm Fort Mifflin based on French fortification schemes. In 1778 French military engineers provided proposals for completing the escarpment. In 1794 Pierre Charles L'Enfant, appointed as engineer for fortifying Philadelphia, proposed a grand scheme which was finally undertaken on a lesser scale by Louis de Tousard. When the fort was completed, the water batteries, brick scarp walls, and casemated bastion were integrated into the original stone scarp.

Officially named in 1795 for Governor Thomas Mifflin of Pennsylvania, by the War of 1812 the fort was Philadelphia's main defense and subsequently became a link in the American system of coastal defense. Substantially completed in its present form with the Commandant's House (1794-96), the Soldiers' Barracks and Smith's Shop (ca. 1798), the Officers' Quarters (1814), the Guard House (1815-16), and the Hospital (ca. 1819) outside the escarpment, Fort Mifflin on Mud Island was reduced to a secondary status after the establishment of Fort Delaware downriver on Pea Patch Island circa 1820. Following the construction of the Artillery Shed (1837) and the Storehouse (1842), Fort Mifflin was destined for oblivion except for brief activity during the Civil War, primarily as a prison. Though magazines were constructed in 1866 and ca. 1875, the fort was disarmed at the turn of the present century. By 1930, Fort Mifflin finally received long overdue recognition as a relic of the past and was restored by the Army Corps of Engineers, caretakers since 1904. Realizing the importance of this historic property, the United States, seeking a sympathetic

custodian, conveyed Fort Mifflin to the Commonwealth of Pennsylvania, which in turn deeded it to the City of Philadelphia in 1962. The city received a remarkable legacy of late eighteenth and early nineteenth century military architecture.

CHAPTER ONE

JOHN MONTRESOR'S FORT: 1771-1777

South of the confluence of the Schuylkill and Delaware Rivers, a few miles below the nucleus of eighteenth century Philadelphia, were a series of small islands and marshy peninsulas. Erected on or near these islands at intervals throughout the seventeenth century were various Swedish and Dutch fortifications, strongholds of a type common to the American frontier, often amounting only to a simple blockhouse with palisades of vertical poles.¹ By the middle of the eighteenth century, in response to the beginning of war between Spain and England, agitation began for the creation of a proper fort to defend the city adequately against waterborne attacks.

A fortification project for the defense of the Delaware, attributed to a Lieutenant Myers, was presented to the Pennsylvania Provincial government as early as September, 1762,² but apparently no action was taken for nearly a decade. On March 9, 1771, 15,000 pounds were appropriated by the General Assembly for the design and construction of a fort on the Delaware for the defense of Philadelphia. Included in the sum was the purchase of Mud Island, sometimes called "Deep Water Island," from Joseph Galloway, the Speaker of the House.³ Subsequently, John Montresor, a British captain and military engineer stationed at New York, was recommended to the Pennsylvania authorities by Governor Thomas Gage of Massachusetts to carry out the work of fortifying Mud Island.⁴ Captain Montresor arrived in the city on April 21, 1771, and immediately reported to Governor John Penn. The following day, the Governor's secretary showed him Myers' drawings, which were discussed during the next few days by Montresor in a meeting with the Governor and his appointed Board of Commissioners, who were to direct the construction of the fort. Apparently, Lieutenant Myers' proposals were abandoned altogether; the editor of Montresor's journals wrote:

Captain Montresor laid before the Commissioners six designs for a fort, and for No. 1 of the series, made an estimate for a star redoubt, costing 15,000 pounds Pennsylvania currency, and that the foundation on piles, which he considered necessary, would be 5,000 pounds more. His plan also included retrenched batteries at Gloucester, in New Jersey, Gloucester Point in Pennsylvania, opposite, and Windmill Island; the three to cost 10,000 pounds. He also advocated twenty floating batteries complete for 2,000 pounds besides materials and combustibles for fire-rafts, in store 1,000 pounds together with an arsenal of intrenching tools and other military stores, to cost 7,000 pounds.

The Commissioners were in favour of economy, and for paring down some of the estimates, even to rejecting the use of piles for a foundation, whereupon the engineer wrote to them "that a good engineer is not unlike a good physician, who prescribes what is most beneficial without regarding expenses. Whatever is to be done

ought to be permanent and compleat, otherwise it will never be an honour to those that order it, nor those that execute it; on the contrary (while it has an existence) it will remain an imputation of ignorance to the engineer, and of ill-timed parsimony to the provinces. For example, the battery at New York, and that cost 25,000 pounds cum multies aliis. I have no inclination for building you a Luxembourg, or a L'Isle, or in any degree to involve the province into endless expense. What I purpose laying before you shall be compleat to the utmost of my ability. As you abridge your expense, so must I my estimate. If your grant is contracted, so must be your works."⁵

In a notebook labelled "Fort I built on Mud Island for the province of Pennsylvania, and for which I have never been paid," Captain Montresor stated that the work was "... intended to mount 32 pieces of cannon, 4 mortars, and 4 royal howitzers, making on the whole 40 pieces of ordnance which at 6 men [make] 240 men required, 160 musquetry, in all 400 garrison."⁶ An outline of expenses accompanied this entry and included the hiring of "Draftsmen for copying" and models. A record of payment to Montresor for his work is contained in Appendix 1.

Activity at Mud Island appears to have been delayed for more than a year, since the operations of laying out the fort did not occur until June 4, 1772; on that day Montresor "traced out the lines of fortification..." and returned to New York, leaving the works under the direction of John Palmer. Apparently a general contractor and mason, Palmer was paid 12,755 pounds in 1774 for work and materials used at Fort Mifflin (Appendix I). Another year passed with the work still incomplete; Lieutenant Governor Richard Penn wrote to Montresor in New York on May 13, 1773, describing the work as "almost at a stand, and unable to proceed without more ample directions and some particular plan..." Penn requested his "... personal attendance as soon as he can make it convenient."⁷ A local citizen, Jacob Hiltzheimer, noted this delay in his diary on October 13, 1773: "Went down to Mud Island to see the Fort which is being built --- it was commenced about seventeen months ago."⁸

On January 20, 1774, Governor John Penn described the status of the work to the Assembly:

I am to inform you that the Commissioners ... have lately laid before me their Accompts, by which it appears to me, that they have expended the whole Sum appropriated to that Use [15,000 pounds] in the Purchase of a small island ... and in constructing a great Part of such a fortification, as by the Opinion and Advice of a Skilful Engineer, recommended by General Gage, was absolutely necessary to answer the End proposed. You will, on enquiry, find that the Work, so far as it has been executed, is done in a Masterly Manner, and that Materials, to a considerable Value, are on the Spot, ready to continue it as soon as the Season will admit it. The Plan of

the Fort and the Commissioners Accompts will be laid before You, by which you will perceive how much remains to be done, in what Manner the Money has been disposed of, and how much is yet in arrear to the Workman, &c. From hence you will be enabled to judge what further Sum will be wanting to compleat a Work which has for many years been considered ... of the greatest Importance for the defence ... of this flourishing and populus City.⁹

On the following day the Assembly resolved that the fortification commissioners might draw orders on the Provincial Treasury for the workers' payment; on January 22, 1774, it was further noted that "... the money in Arrear to the Workmen and others concerned in Building the Fortification, should be immediately paid...."¹⁰ These accounts were published in the Pennsylvania Gazette on February 23, 1774 (Appendix I), yet work appears to have soon been stopped by the British, due to the move toward independence in Pennsylvania and other colonies.

At this time, the fort was hardly defensible. The stone wall that extended along portions of the east and south perimeters of the fort was unfinished. Designed by Montresor (Appendix II), it is the only remaining record of his work on Mud Island, as none of his drawings has been discovered.

At the insistence of revolutionary patriots, the Assembly of Pennsylvania created a Committee of Safety on June 30, 1775, to formulate and direct plans for the defense of Pennsylvania. Benjamin Franklin was unanimously chosen president of the new committee.¹¹ On July 5, the entire committee "... went to Red Bank, Mud, or Fort Island, & viewed them and several parts of the River...."¹² Again, on October 15, members of the same committee met at Fort Island to "view the works erecting there" and thought that the "men employed on Board the Boats should have a proper shelter." As a result, it was resolved that "... part of the House on said island be partitioned off in the middle, and that a person be employed for that purpose, and to carry up a forge or Fire Places."¹³ On October 17, John Palmer was again contracted to continue the masonry works;¹⁴ by October 23, the Committee of Safety issued orders to buy a "... Quantity of half-Price Boards, and send them to Fort Island, for the purpose of building a leantoo shed against the inside of the Fort Wall, sufficient to cover two or three hundred Men in bad weather."¹⁵ Robert Whyte and Samuel Morris were appointed on October 30 as "... a Committee to direct the building of the Shed on Fort Island ... and to repair such Buildings as may be already erected on the Island, that may be made suitable to the accommodation of the Soldiers and Sailors."¹⁶ On December 19, 1775, Joseph Reed, Samuel Miles, Robert Whyte, and George Clymer were requested to report what further defenses were necessary "... for the security of the Fort, and Passage through the Chevaux de Frize" placed in the Delaware River.¹⁷

Joseph Reed made his report to the committee:

We the subscribers having reviewed Fort Island and examined the Approaches thereto are of Opinion that it is at present easily accessible on the West Side & that there is great Danger if a body of Men should land on that Part of the Island they might surprize any Garrison posted there: To prevent this we think a proper Work might be thrown up when the season will admit beginning at the Waters Edge above the Southermost Bastion of the Fort now built and passing along so as to include the whole of the Fortification & the Houses built on the Island that such a line with a proper Ditch and Parapet would be a great Security against any such Surprize. And as any Attack of this kind must from the Situation of the Ground be made by Musquetry or fixed Bayonets we think a good stockaded Line would be the most proper as in that Case with a vigilant Guard, a few men might defend it against almost any Force that could act with any Advantage on such Ground. We are also of Opinion that Wolf Pits or Holes with Stakes sharply pointed drove into them at suitable Places would add to the Security this Work is intended for.

Upon a general View of the Island and its Communication with the main Land we are of Opinion that such Communication might be much facilitated if a Causeway or Bank was thrown up at the nearest Part of the West Side of the Island to the Main and a good Landing place made at each Shore, it appearing to this Committee that in its present situation the relieving and supporting the Garrison there would be attended with much Difficulty and Delay.

With Respect to the Construction of the Work first mentioned and its Form we must refer it to Persons skill'd in Engineering, But we Submit it as our Opinion that Bastions will be preferable to an extended Line. We would also recommend it to the Consideration of the Committee whether Guard Boats to row around the Island at Night would not be very proper to prevent any Surprize.¹⁸

The keystone of the defense of the Delaware was Fort Mifflin's ability to defend the chevaux de frise that obstructed the river to navigation, thereby blocking access to Philadelphia. Robert Smith (Appendix II) had presented to the Committee of Safety on July 24, 1775, "a model of a machine for obstructing the River Delaware."¹⁹ Smith's design was for marine chevaux de frise, also known in the late 18th century as "stackadoes." These were iron-tipped poles anchored at an angle in frame boxes sunk with stone at strategic points in river channels, designed to tear into the wooden hulls of sailing vessels. A number of these devices were arranged in two tiers in the Delaware just off of Mud Island, with another tier a few miles downstream at Billingsport. Protected from breeching by galleys of the American fleet and the batteries on Mud Island, the chevaux de frise were designed to block British access to Philadelphia.

On February 24, 1776, the Committee of Safety requested that Owen Biddle and Robert Whyte "order a Smith's Shop and Forge be erected on Fort Island, and to furnish the same with the proper Smith's tools."²⁰ On March 7, "three of the armed Boats...in most readiness..." were ordered down to Fort Island, and while there the men be quartered at the "Pest Home on Province Island...until sufficient Barracks on Fort Island are built."²¹ John Reed was appointed "Clerk, Commissary of Stores, and Barracks Master" at the fort on May 1, 1776.²² On May 27, Robert Allison, treasurer for the Committee of Safety, ordered payment for foundations logs for the blockhouses.²³ Soon after, orders were issued to the acting commander of the Pennsylvania state navy, Captain Thomas Read, directing "all Boats to be stationed at Fort Island," since the barracks were "now ready for the accommodation of the officers belonging to the Boats...."²⁴

By June 17, the contractors were asked to "... desist carrying on the Buildings at Fort Island"²⁵ and on July 20, the carpenters were paid one hundred and sixty-four pounds for the work at Fort Island.²⁶ The barracks were apparently completed when John Reed wrote to the Committee on July 23, 1776, stating that, "The Roomes for the Officers in the Barracks are nearly finished - one of the Carpenters...has applyed for...locks to put on the Doors of [the] apartments."²⁷ Later, on August 17, he reported to the Committee that the banks of the fort were leaking, especially on the west side, and noted, "As there [was] a Quantity of Boards left of the Bldgs, to'gather with those on the sheds, it will be necessary to have a Work Yard properly inclosed, to preserve the Cord Wood in the winter season...."²⁸ Reed made another plea on September 7 for workmen to repair the banks "... as there are a great number of Leaks, many very large and dangerous, which on every high tide is liable to Increase." He also stated that he would be glad if the carpenters "... were ordered to Inclose a Yard in the Barracks for the security of Cord wood to be laid in for this station."²⁹

Later in the month Reed further described his needs and reported that he had hired William Smith, a corder and ditcher, adding that "The Gutters of the Committee house should have been painted...."³⁰ On October 16 he inquired about the quantity of wood that should be issued to a "Barrack roome containing 15 to 16 men during the Winter season.... Major Proctor tells me he proposes to lease Iron Stoves for the Barrack roomes, if so, I think it will be of great service, as the wether Bording of the Barracks are without lineings and many Cracks and openings are two plain to be seen, thro'out the whole of ye rooms."³¹ It was ordered on October 24 that the Committee for Fort Island "Erect a fire ... & employ persons to manufacture nails at said Island."³² In November John Reed made another request for stoves:

Our Barracks are far from being close and warme as those in the City, as they are not plaster'd and many Cracks and knot holes too plainly appear in the wether bording ... I have not quite one hundred Cords in Store, and it will take upwards of three hundred Cords to suply this Garrison... I cannot help repeating the request that the proper allowance to each Barrack may be fixt, and if posable Stoves sent down.³³

Major-General Philippe Charles Trouson du Coudray (Appendix II), an experienced French military engineer, was appointed by General Washington as Inspector General of Ordnances and Military Manufactories for the Continental Army in mid-1777. On June 11, du Coudray received authorization from the Continental Congress to review the various Fortifications and the chevaux de frise erected for the defense of the Delaware. This report, submitted on June 21 by du Coudray and Gen. Thomas Mifflin (Appendix II), advocated the completion and strengthening of the defenses at Billingsport, located about three miles below Fort Island on the New Jersey shore. Billingsport was favored because the narrow navigable channel there would be more defensible and thus the chevaux de frise more difficult to remove. It was du Coudray's opinion that Fort Island was poorly situated and that its main battery was improperly positioned. The fortifications at Red Bank -- later Fort Mercer and located opposite Fort Island on the New Jersey shore -- were thought well designed, yet not close enough to Fort Island to participate fully in the defense of the chevaux de frise.³⁴

On August 6, in a letter to General Washington, the French engineer reiterated his preference for Billingsport as the primary defense and outlined needed improvements. He stated that Fort Island "... is very bad, being inclosed only on two fronts, by one palisade with bad loop holes, and very ill flanked...."³⁵

Yet in early August, a few of Washington's generals and advisors also submitted opinions regarding the merits of Philadelphia's river defenses.³⁶ None advocated the abandonment or weakening of Fort Island's works as du Coudray had recommended. Joseph Reed, a member of the War Board, expressed "... particular Pleasure in learning that the Idea of abandoning it... is exploded,"³⁷ indicating, perhaps, that a decision to retain Fort Island as the keystone the Delaware's defense had already been made. Brigadier-General Henry Knox wrote that if time allowed "... a strong enclos'd work ought to be thrown up...capable of containing 4 or 500 men; an advantage may be taken of part of the stone works already erected."³⁸ The "stone work" is most likely a reference to Montresor's wall. It was also suggested by the correspondents -- including Generals Nathaniel Greene and Anthony Wayne -- that the land on the Pennsylvania side west of Fort Island should be "laid under water" by cutting the dikes and retaining walls.³⁹ The Billingsport defenses downriver, advocated so strongly by du Coudray, were not thought to be in a condition to repel an attack directed from either the land or the river. Joseph Reed commented that Billingsport would "have been better left in a State of Nature...."⁴⁰

On August 9, General Washington wrote to Congress recommending that efforts be concentrated toward improvement of the defenses of Fort Island: "...I am of the opinion that the obstructions in the River, with the help of galleys, floating batteries, and with tolerable industry to put the land works in a proper state, will be extremely formidable to the enemy...."⁴¹ On August 10, du Coudray again wrote to Washington, apparently modifying his insistence that Billingsport become

the primary defense. After spending the day "... in examining, combining, and drawing all its [the fort's] particular circumstances as well as those of the environs,..." he wrote, "... the situation of fort island is more advantageous...by the difficulty which the enemy shall have of approaching it; by the Resources which the ground affords of erecting there a better fortification; and by the facility of conveying assistance." He did, however, express concern that "the enemy, by means of small vessels ... might conduct there a number [of men] sufficient to nail up the cannon, and destroy the single palissade... which constitutes actually its only Defense on three of its four fronts." 42 After reviewing du Coudray's survey of the river at Fort Island, Washington again wrote to Congress on August 15 recommending against further expenditure of men and material on Fort Mifflin's works: "A few Chevaux de frise properly placed might effectually bar all access to the ships; but there is a possibility that any battery we can construct might be overpowered by the fire of the shipping. And as we have few cannon and Fort Island is itself a marshy spot incapable of affording earth for the batteries necessary to be raised upon it, ... it would not be prudent to multiply works there more than cannot be avoided."43

Du Coudray, once again taking exception to the works raised at Fort Island and to Washington's opinion, addressed a petition to Congress on August 29 which described the fort as being "... in a situation of being demolished in a few hours, if it be attacked in the condition in which it is at present; viz surrounded by a single palissade, or with a wall without a terrass, which can only defend it against a coup de main, and cannot by any means resist the cannon."44

At this time, the combined British fleet and army, under the respective commands of Lord Richard Howe and Sir William Howe, were somewhere in the Chesapeake Bay. Although their destination at first was uncertain to the Americans, it was generally believed that the British were headed for the young republic's capital at Philadelphia. Fort Island, as described by du Coudray, was hardly prepared to protect the chevaux de frise obstructing the Delaware, and preparations were again undertaken to make the fort more defensible. Generals Mifflin and du Coudray were charged with the task, yet the Frenchman still voiced objections to the choice of Fort Island as the river's primary defense as late as September 7.45 Du Coudray, however, is credited with first referring to Fort Island as "Fort Mifflin," which soon became its accepted name. General Thomas Mifflin assisted du Coudray in his survey of the Delaware and the two apparently became friends.46

After landing at Head of Elk, Maryland, on August 25, British troops had been drawing closer to Philadelphia, engaging and defeating the Americans under Washington at Brandywine on September 11. By the 13th, government officials began departing Philadelphia.47 The next day General Washington directed that the banks protecting the low ground of Province Island -- across the channel to the west of Fort Mifflin -- be cut, thereby flooding the island in hopes of preventing the erection of an enemy battery there.

On September 19, Jacob Hiltzheimer wrote that, "News came to town that General Howe's army are crossing the Schuylkill at the Swede's Ford, which set people moving. Congress and all other public bodies were off by daylight...." On September 23, he recorded, "The city much alarmed and people moving out."⁴⁹ Subsequently, General Cornwallis, at Howe's direction, entered Philadelphia on September 26.

Meanwhile, Fort Mifflin, in need of repairs and additional fortifications, had been garrisoned by "Colonel Lewis Nicola with 60 of his Regiment of Invalids and two Companies of Artillery of 30 each."⁵⁰ On September 23, Washington appointed Colonel Henry Baron d'Arendt as commander of Fort Mifflin, with Lt. Colonel Samuel Smith second in charge (Appendix II).⁵¹ Smith arrived at Mud Island with approximately 200 Continental troops on September 26 or 27; d'Arendt had taken ill and was unable to execute his command, the command thereby falling to Smith.

From Smith's Autobiography comes a description and drawing of the fort as it was before the British siege of October - November, 1777. His crude drawing of the fort (see photocopy) shows Montresor's original stone wall enclosing the work on part of the southwest side and all of the southeast side of the fort. The remainder of the enclosure was provided by a palisade of pine logs. He describes "... a fort walled with freestone on the site opposite to the Jersey shore and the approach from above, flanked by three wooded blockhouses, mounting eight-pound French guns in their upper stories. There was, also, an open platform, on which were mounted eighteen pounders, pointing down the river, with one thirty-pounder, being the only piece that pointed on Province Island...."⁵² In addition, Smith shows the presence of ditches running outside the northeast and northwest stockades. Inside the fort, a mud "parade" ground is flanked by soldiers' barracks on the northeast and northwest sides; the officers' quarters, depicted by a rough sketch, is shown as a three-bay structure located just inside Montresor's wall at the southwest end of the fort. Smith also marks the position of the wooden blockhouses, which are located at the west, north and east corners of the fort. In sum, the work "... reflected the lack of military engineering, and resulted in a fort more suited to frontier defense..."⁵³ than a protracted artillery barrage. Smith himself admitted that he was "unskilled in every way relative to the defense of fortifications...."⁵⁴

To his relief and Fort Mifflin's benefit, Major Francois Louis de Fleury (Appendix II) was appointed engineer to prepare the fort against artillery attacks. Arriving at Mud Island on October 14, 1777, de Fleury set to work at once.⁵⁵ A map dated October 16, 1777, (CGM #11) by de Fleury shows Ft. Mifflin in a similar state as described by Samuel Smith. In addition, de Fleury's rendering shows the primary battery, located at the south end of the defenses upon a high bank and in front of both the palisade and Montresor's stone wall. This battery contained eight cannon, directed downriver, ostensibly to protect the British from breaching the chevaux de frise. The drawing also depicts dikes that encircle the fort, allowing the defenders to flood the island if necessary.

Contained within these dikes, de Fleury shows a deep ditch, running on all sides of the fort except the south.⁵⁶ Prior to the all-out bombardment of Fort Mifflin by the British in November, 1777, de Fleury worked feverishly, trying to assemble a unified defense and to secure both fort and men a measure of protection against the enemy's heavy artillery.

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32. PA, CR 10:765.
33. PA, First 5:60.
34. Jackson, 98.
35. Worthington Chauncey Ford, "Defenses of Philadelphia in 1777," PMHB
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36. Jackson, 106.
37. Ford, 171.
38. Ibid., 173.
39. Ibid., 5-12, 163-164.
40. Ibid., 169.

41. Ibid , 174-181, Washington to President of Congress, August 9, 1777;
Jackson, 107-109.
42. Ford, 181-183.
43. PA, First 5:26; Ford, 183-184.
44. Phillipe Charles du Coudray, "Memoir upon the defense of the two
passages of the river viz Billingsport and Fort Island,"
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Pennsylvania, Philadelphia; Ford, 18:330-333.
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46. Ibid., 427-428.
47. Ibid., 119.
48. "Hiltzheimer," PMHB 16 (1892): 99.
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50. Samuel Stelle Smith, Fight for the Delaware, 1777 (Monmouth Beach,
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CHAPTER TWO

SIEGE: OCTOBER-NOVEMBER 1777

Entering Philadelphia on September 26, British troops found commerce at a standstill and an acute shortage of food and supplies. The American forces now concentrated upon maintaining a blockade of the city through control of the Delaware and the continual harassment of British foraging parties and supply lines. The keystone of this strategy was the river blockade through use of the chevaux de frise and Forts Mercer and Mifflin. Ranges of chevaux de frise were positioned in two locations in the Delaware: at Billingsport, and near the southern tip of Mud Island. General Howe's first priority was to silence these forts and clear the Delaware of chevaux de frise before the advent of winter.¹

The fortification at Billingsport, built on the Delaware's New Jersey shore downstream from Fort Mifflin, was intended to protect the lower tier of chevaux de frise, yet was itself indefensible from a land attack. British troops launched such an assault on October 2, resulting in the fort's abandonment by the American defenders.² On October 6, the British fleet under Lord Richard Howe had arrived in the Delaware from the Chesapeake Bay. Operations to remove the chevaux de frise soon followed amid continual harassment by vessels of the American fleet under Commodore John Hazelwood (Appendix II). By October 12, one of the obstructions was removed while a second was shifted aside the next day. By October 19, the larger ships of the fleet were able to pass through the openings in the chevaux de frise and proceed toward Forts Mifflin and Mercer.³ Designed to protect the chevaux de frise from a downriver attack, Fort Mifflin was particularly vulnerable along its western side, where its only protection was provided by a wooden palisade.

Captain John Montresor, the British engineer responsible for the fortifications at Fort Mifflin in 1771-1774, was now back in Philadelphia as chief engineer for the British forces. General Howe placed Montresor in charge of erecting land batteries on Province and Carpenter's Islands, located directly across the channel northwest of Fort Mifflin. The British controlled access to these islands through their occupation of Philadelphia upriver. Montresor reconnoitered Province Island on October 3, and construction began on October 8 for a battery to protect the ferry near the mouth of the Schuylkill River.⁴ The next day, Robert Morton, a young resident of Philadelphia, noted in his diary, "The British are about to open Batteries to bombard the Fort at Mud Island."⁵ By the 10th, a second or "middle" battery was constructed on Carpenter's Island, west of Fort Mifflin.⁶ Montresor noted in his journal:

10th. This night the Engineers constructed a battery unperceived, the battery 250 yards from the enemy's floating battery, and 500 yards West of the Fort on a dyke in an overflowed meadow ... The above or Middle Battery, constructed on Carpenter's Island, for one 9 inch Howitzer and one Eight inch mortar.

The next day, the American navy shelled the British detachment occupying the middle battery. Montresor recorded:

11th. At 1/2 past 9 this morning the rebels landed about 180 men near the battery built last night, and advanced and summoned it and the Captain of the 10th [regiment] delivered it up ... During this day the Rebels fired ... Cannon Shot at this battery from the instant day broke. The Troops being few and harrassed no work this night.⁸

A second American attack on the same battery occurred the next day, October 12, yet was not as successful. Montresor notes:

12th Sunday. At 11 o'clock this morning about 500 Rebels landed in the front and 2 flanks of the Battery with Bayonets fixed (Previous to which they shelled it with a very heavy cannonade, from the Fort, Floating Batteries and Gallies),...the rebels concealing themselves under the Dyke and behind trees, and bushes, in the mean time Major Gardiner with 50 Grenadiers moved from his post to outflank the rebels and the battery, which he succeeded in by the rebels taking to their boats....⁹

On October 13 and 14 Montresor directed construction of a third battery on Province Island. The chief engineer recorded:

13th. This night began a battery on the point of Province Island at the Post houses for Iron Eighteen Pounders. 14th. Working party and covering for this night 500 men. Continued on the Post House Battery and completed it during the course of this night. Also began on a new Battery to the right and finished it....¹⁰

This last battery was raised on Carpenter's Island. On October 15, the British commenced firing from these batteries, with the initial shells sinking into the mud at Fort Mifflin. To make their shelling more effective, the Britishartillerists trimmed the fuses of the bombs to "such a length as to make the shells burst in the air over the heads of the garrison, and fall in pieces among the soldiers."¹¹

At his headquarters in Germantown on October 16, General Howe expressed his dissatisfaction to Montresor that Fort Mifflin was still held by the Americans; Howe stated that three weeks were "now elapsed and nothing done,"¹² an observation that Montresor always resented, generating his subsequent criticisms of the general and his operations. The British were both surprised and unsettled over the stiff and resourceful resistance displayed by the Americans. Moreover, with a large army to feed and supply in a city surrounded by the enemy, the British occupation of Philadelphia became less tenable with each day. It was imperative to General Howe that the American defenses be leveled and the river opened.

Moving his headquarters to Philadelphia on October 19,¹³ Howe conceived a three-part attack upon the American river fortifications. Hessian forces under the command of Colonel Carl Emil von Donop were to cross the Delaware and attack Fort Mercer, a small but strong work on the Jersey shore that defended Fort Mifflin's supply lines and provided reinforcements. Simultaneously, the British fleet, whose frigates were finally penetrating the Billingsport chevaux de frise, were to engage the artillery of both Fort Mifflin and the American fleet. Finally the land batteries erected by Montresor were to shell Fort Mifflin, in preparation for a British storming party. The Hessian force, numbering about 1200 men, crossed the Delaware on October 21 and attacked Fort Mercer the next day. The Americans in the fort, under the command of Colonel Christopher Greene, easily repulsed the Hessians, who suffered heavy losses, including Colonel von Donop.

On the 22nd, ships of the British fleet under Lord Howe maneuvered about the sandbars in the Delaware and between the chevaux de frise, preparing for a bombardment of Fort Mifflin and the American fleet.¹⁴ After exchanging fire late in the day, the British headed downstream where the sixty-four gun Augusta and the eighteen-gun Merlin went aground. Discovering this early the next day, Commodore Hazelwood directed the guns of his fleet upon the stranded sloops; in addition, the main battery at Fort Mifflin also joined the shelling. Late in the morning, the Augusta caught fire and was abandoned, and shortly afterwards blew up with a sounding explosion. The Merlin was then set on fire to prevent an American capture.¹⁵ Simultaneously with the action the British had also sent a heavily armed, shallow-draft slip -- the Vigilant -- up the channel to the west of Hog Island to participate in the shelling of Fort Mifflin in advance of a British storm of the fort. Abandoned due to rough water, this ended the unsuccessful attempt to loosen the American grip on the Delaware.¹⁶

During the action of October 22 and 23, Colonel d'Arendt was in command at Fort Mifflin. Slightly injured during the artillery exchange, the "Baron" again left Mud Island in care of Colonel Smith. Before departing he ordered "wolf-traps" -- cone shaped holes dug in the ground containing a sharpened stick -- dug outside of the fort to impede British storming parties; he also directed that the island's dikes be cut, thereby flooding the fort.¹⁷

The shelling of Fort Mifflin resumed after the unsuccessful conclusion of the British offensive, and lasted until October 26, when rain forced its suspension.¹⁸ Repairs at the fort were hindered because of rising water, there being "no dry place except Barracks and platforms."¹⁹ The British batteries on Province and Carpenter's Island were also flooded by the heavy rainfall and the breaching of the dikes by the Pennsylvania militia.²⁰ During this time Colonel Smith greatly feared a nighttime attack from British troops, resulting in General Washington's request for Commodore Hazelwood to send patrol boats around the island.²¹ The fort itself was in no condition to withstand the barrage expected from the enemy batteries; building materials were unavailable and the men were exhausted from overwork, their numbers dwindling daily from sickness and injury.

Meanwhile, Major de Fleury, working with the resources available, had directed his efforts toward strengthening the fort's vulnerable defenses since arriving on October 14. His map of November 9 (CGM #10) illustrates improvements made under his direction. Noting the roughness of his drawing, de Fleury penned on the map:

the Engineer author of this imperfect Draft begg indulgence for it; Considering, that he has not paper, pen, Rule neither Circel, and being disturbed by good many Shells, or Cannon's balls, flying in the fort.

Portions of the earthen banks that covered and protected the palisades had been added to, the height of the wall on the fort's west side was increased, and fraise-work -- sharpened branches placed at an angle -- were positioned along the north and west sides of the fort. During the nights of October 20 through the 23rd, de Fleury strengthened the main battery at the fort's south end, installed a double chain supported on floats in the channel to the west, and began a salient work for a battery near the middle of the north palisade.²² Before de Fleury's arrival, Colonel Smith had placed two batteries outside the fort proper: the first, containing two cannon, located near the northwest blockhouse, was directed toward Province Island; the other was placed at the "old ferry wharf" on the western channel some distance north of the fort. Inside the fort, ditches connecting the barracks were dug and parapets thrown up, forming a second line of defense; the original stone was reinforced with packed earth, and a strong, cruciform redoubt was built in the middle of the fort as a last defense.²³ The fort was described on November 5 as having "... the grandest wall of hewn stone ...,"²⁴ magnificent Barracks -- the more useful works are of earth -- ...²⁴

In preparation for a final assault, the British began repairs of their works on November 1. A few days later, Montresor conferred with General Howe concerning the destruction of Fort Mifflin, fixing on a plan that directed the combined firepower of British land batteries and naval artillery upon the makeshift fort.²⁵ Preparations were made to supplement the works on Carpenter's and Province Islands by the construction of two more batteries.²⁶ In addition Montresor ordered two floating batteries to be built for use in the western channel.²⁷ Work on these installations was prevented by rain and flooding on November 5th and 6th, but activity was resumed the next day.²⁸ In all, Montresor had three batteries on Carpenter's Island, one on Province Island, another at the ferry on the Schuylkill, the floating batteries, and finally, a few small redoubts to protect British supply lines.

On the morning of November 10, the British commenced a heavy barrage from their batteries with Americans responding from their batteries outside the fort. By afternoon much of the fort's west wall was destroyed and the western range of barracks heavily damaged. The batteries on Province Island directed their fire toward the northern palisades and northeast and northwest blockhouses; these were nearly

leveled, with the guns knocked off their carriages. During the night the British continued shelling at half hour intervals, which, combined with heavy rain and freezing temperatures, prevented any respite for the fort's beleaguered garrison. ²⁹

The next day, November 11, saw the continuation of the shelling. Part of the stone wall was destroyed and the two batteries outside of the fort were silenced. Colonel Smith was injured by a cannonball that "... came through the stockade, the barracks, and two stacks of chimneys: and, nearly spent, it struck him on the left hip and dislocated his wrist. He fell covered with bricks, by which he was severely bruised." ³⁰ Leaving the fort for medical attention, Smith was replaced by Lieutenant-Colonel Giles Russell of the Connecticut Regiment. ³¹ Robert Morton noted on November 12: "This day a severe firing by which the American Barracks was several times set on fire, but soon extinguished." ³²

Rough weather hampered British efforts to bring the Vigilant up the western channel to join in the bombardment; the land batteries, however, completed the destruction of Fort Mifflin's western blockhouses. Major Simeon Thayer -- stationed at Fort Mifflin before the British offensive on Fort Mercer on October 22 -- volunteered on the 12th to go to the fort in Smith's absence, relieving Russell and continuing repairs with de Fleury. The same day Montresor reported that "The N.E. front of the Stockades of ye Rebel Fort practicable in 20 places. The lower Block House declining." ³³

The 13th saw continued rain and shelling and, during the night, the French engineer directed makeshift repairs of the western wall; the holes in the palisades were filled with planks and the earthen ramparts repaired. The bombing continued the next day, yet the Americans dislodged the British gun crew from the floating battery. Thayer requested reinforcements "of 100 or more men," reporting enormous damage and desertions, but added that he would not "... dream of delivering up so important a post as this...." ³⁴

At daybreak on November 15, the British batteries opened an intensive barrage against Fort Mifflin, now largely in ruins. Ships from the main naval squadron of Lord Howe moved up the Delaware and into position to rake the fort from the southeast and engage the American galleys. ³⁵ After successfully navigating the western channel to within 200 feet of the smoldering fort, the Vigilant and the Fury opened with tremendous broadsides. The Vigilant contained sharpshooters in its rigging who also threw hand grenades onto the fort's garrison. The firing from all fronts continued unabated until the early evening. One source reported over one thousand shots discharged in a twenty minute period. ³⁶ At noon Major Thayer raised the blue distress flag to Commodore Hazelwood. The wounded, laying unattended behind the stone wall, waited until dark when the boats were sent to take them to Fort Mercer. Thayer remained with about forty men to spike the cannon and burn the remaining buildings. ³⁷

Montresor noted in his journal on November 15: "This night at 1/2 past 11 the rebels set fire to and consumed the Fort Except the Block houses and Commanding Officers house and then evacuated Mud Island leaving their colour standing...." ³⁸ Robert Morton wrote in his diary that

The damage which the Fort sustained by an almost incessant fire for 7 hours, which burnt the Barracks, knocked down the Block Houses, dismounted the cannon and otherwise rendered the Fort untenable, obliged the besieged to evacuate and retire to Red Bank ... Thus by American perserverence and the Fort's situation a British Army ... had been detained in their operations near 7 weeks by a power far inferior to theirs.... ³⁹

The next day Montresor wrote:

16th. Sunday. At 1/2 past 7 this morning, a boat with some sailors landed at the Fort on Mud Island and took down the Rebel colours which were left standing and hoisted our own. At 9 Sir George Osborne (whom I accompanied) and the detachment intended for the storm ... took possession of the Fort and immediately began on a Battery for four 32 pounders, partly for the Defense of that post and partly to prevent their vessels annoying us in removing the Chevaux-de-frise. ⁴⁰

The British established a battery at the fort to cover their ships while removing the upper chevaux de frise.

In his orders for November 16, General Howe issued thanks "... to all the officers and Men Employed in the Reduction of Mudd Island and particularly to Brigadeer Gen'l Cleveland, Capt. Montresor Chief Engineer and Capt ^{ons} Montcrief and Trail and the Officers and men of the Artillery Employed upon that Service for their great Exertion and Indefaticable Zeal throughout that verry laborious operation in which the officers and Men of the navy take so great a share." ⁴² In a dispatch to Cornwallis of November 28, however, Howe mentioned only Cleaveland's name, causing Montresor to write bitterly in his journal that his role in the siege was "far the most severe" of any of his American campaigns and charged that "During that undertaking this grand hero [Cleaveland] was in bed wrapped up in his flannels...." ⁴³

Several maps from this period accurately depict the fort at the time of the siege. Besides showing the intricate construction of the ramparts and scarps, these maps and plans provide a record of the buildings, none of which survives. Charles Blaskowitz's "A PLAN OF MUD ISLAND AND FORT MIFFLIN with the siege thereof," with inset "A PLAN OF FORT MIFFLIN on MUD ISLAND before its Evacuation by the Rebels" (see photocopy) substantially supplements Samuel Smith's sketch plan by providing scale. This map includes the double line of stockades along the inner channel protecting the uncompleted side of the fort, the stockade and battery defending the downriver approach to the fort, the

ditches for the moat, and the wolf pits filling the reentering angles of the stone scarp demibastions and the "no man's land" between stockade lines and ditches. Also indicated are two piers extending into the Delaware River and a causeway leading to another wharf in the Province Island channel. Though the blockhouses, one at each east, north, and west points of the enceinte, and the two ranges of barracks are named, the northeast barbican, the commanding officer's house, the central, cross-shaped bombproof, and center block house are not identified. The latter was noted by Major Louis de Fleury on his map dated November 9, 1777 (CGM #10), as the "Last retreat in the middle of the Fort...." The maps of Major de Fleury, while not as skillfully drawn as those of the British cartographer-military engineers, nevertheless provide an invaluable graphic representation of the events of October-November 1777, as executed on the spot from the American point of view.

Major John Andre's map of "Mud Island with the Operations for reducing it" (see photocopy), originally contained within his manuscript journal, indicates the fort and the vicinity in a somewhat simplified plan. The cross-shaped bombproof is labeled as "a travine," and the commanding officer's house is also identified. Of particular interest on this plan, however, is the "Profile of the West Face of the Fort on Mud Island" showing a chain at water's edge, a low battery, wolf pits separated by a ditch, a stockade, and a partial section of a two-story barracks. The section through the barracks indicates the second-floor level and the foundations below the first floor, which is at grade. Beneath the wall section is an "Elevation of a Block House" showing two elevations, each with two embrasures per floor. An open platform above the second-floor level is under a pyramidal roof supported on posts. The corners are emphasized with quoining, possibly reflecting log construction. Finally, the "Profile of the Masonry" is illustrated and shows battered stone masonry veneer backed up by vertical walling on a stepped footing enclosing the somewhat higher parade ground.

The beautifully delineated and engraved map of Pierre Nicole and John Montresor (see photocopy) is based on several existing hand-drawn maps (CGM #48) produced during the siege. Besides relating Fort Mifflin to "A SURVEY of the CITY of PHILADELPHIA," which shows the chevaux de frise, the inset details of the map have architectural interests. "FORT MIFFLIN on Great Mud Island" is nearly identical to the Blaskowitz plan of the fort.

Below the plan are the most important features of the map. A "Section through A:B" provides a longitudinal view towards the channel stockade. Indicated is the extent of the west battery, with barbette and abatis, and the parapet crenels which provided for the "Battery of 18 Guns" indicated on the Andre map. The west blockhouse, constructed in conjunction with the stockade, is similar to the Andre blockhouse, though additional posts support the roof with a small cupola. The longitudinal section continues through the stone wall and indicates the northwest range of barracks in elevation. The two-story frame barracks with corner boards have seventeen bays of alternating doors and windows

on the first floor with second-floor windows and shed-roofed dormers above each opening. Nine chimneys are located on the gable roof (shown as hipped on the Andre plan) which, in the section through the northeast barracks, is indicated as a rafter-collar beam-strut structure.

In section, the first-floor level, somewhat lower than the floor level of the northwest barracks, has a higher ceiling than the second floor level. Both floors were heated with projecting stone fireplaces. The north blockhouse overlooks a ditch and spiked wolf pits. Within the parade ground section the walkway to the central "Travine" is raised above the "Mud" quadrants indicated on Smith's sketch plan.

A similar raised walkway extends to the Commanding Officer's House, which is detailed in a separate inset drawing as the most architecturally distinguished structure of the fort, utilized during the siege "...for the accommodation of the officers of the garrison."⁴⁴ This building, which terminated the southwest-northeast axis, is rectangular in plan, scaled approximately sixty feet long, and has front and rear central pavilions. The one-story elevation indicates a hipped roof structure with two ridge chimneys on a high stone basement forming a water table probably below brick walls. It is characterized by the central pedimented pavilion with its roundel window above three bays with a central doorway and pyramidal steps. A single window opening is located at each flanking bay and, like the pavilion windows, each is above a basement window opening.

At the bottom of the map, the "VIEW of the Rebel Fort on Mud Island comprehending Red Bank on the Jersey Shore: taken from in front of the 6 Gun Battery" provides a complete overview of the entire fort from Province Island. Adjacent to the fort, on the left, is a two-story, gable-roofed structure, with a side, shed-roofed wing, between two breastwork batteries. This structure with its small auxiliary buildings may have been the residence for the "Clerk, Commissary of Stores, and Barracks Master" of the fort and is located in plan near the Delaware River and the east blockhouse. Within the enceinte, adjacent to the east blockhouse, are a pyramidal roofed structure and a larger gabled roof structure behind a flag pole, which are within the east bastion. Viewed above the stockade are the two gabled roofs, each with seven shed-roofed dormers and four ridge chimneys, of the northeast range of barracks. Behind is a tall ship's mast-type flag pole displaying an unfurled flag. The northeast sally port, opening between the northeast barracks, is within the stockade and consists of two uprights, which probably supported the gates, and is fronted by the crenelated barbican. The north blockhouse and channel stockade partially screen the northwest barracks which has shed-roofed dormers on the back slope of the gable roof. Nearly obscured is the hip roof of the commanding officer's house. The west blockhouse dominates the downriver point of the island extending beyond the southwest battery which aims towards exposed chevaux de frise in the water.

These maps and drawings, together with the Montresor manuscripts, the de Fleury maps, and Joseph Plumb Martin's account in Private Yankee Doodle, present roughly the same general scheme as was discussed at the end of Chapter One except that the enclosure was "...diked around...with sluices so constructed that the fort can be laid under water at pleasure,..." and that the southwest, downriver battery was separated from the stone wall by a ditch. Martin, discussing the burning of the fort by the Americans, remarked that they "proceeded to set fire to everything that would burn;"⁴⁵ and Montresor's November 15 journal entry states the fire "...consumed the Fort except the Block houses and Commanding Officers House...."⁴⁶ How much of the latter structure remained intact after the siege is unknown. The stone wall described in de Fleury's journal as ten feet high⁴⁷ remained to be repaired and incorporated into the fabric of the fort which was rebuilt during the following decades.

¹ Smith, 5.

² Jackson, 131-133.

³ Ibid., 136-141.

⁴ Ibid., 138, 143.

⁵ "The Diary of Robert Morton, Kept in Philadelphia While that City was Occupied by the British Army in 1777", PMHB 1 (1877):17.

⁶ Jackson, 143.

⁷ Scull, 5:464 ,6:34-37.

⁸ Scull, 5:465.

⁹ Ibid., 465.

¹⁰ Ibid., 465; 6:48-49.

¹¹ Silas Talbot, An Historical Sketch to the End of the Revolutionary War (New York: H Caritat, 1803), 28.

¹² Scull, 130.

¹³ Jackson, 170.

¹⁴ Ibid., 194.

¹⁵ Ibid., 195-199.

- 16 Ibid., 200-201.
- 17 Ibid., 211.
- 18 Smith, 23.
- 19 Ibid., 27.
- 20 Jackson, 221.
- 21 Ibid., 219.
- 22 Ibid., 164, 225-227.
- 23 Ibid., 225-227.
- 24 Jeannette Black and William Green Roelker, editors, A Rhode Island Chaplain in the Revolution: Letters of Ebenezer David to Nicholas Brown, 1775-1778 (Providence: The Brandt and Gummere Co., 1949), November 5, 1777, 54.
- 25 Scull, 519-520: "Montresor's Proposals to Sir William Howe for the storming of the Rebel Fortress of Mud Island, and to head and direct it."
- 26 Jackson, 29.
- 27 Smith, 29.
- 28 Jackson, 222-223.
- 29 Ibid., 231; Samuel Smith to General Washington, November 11, 1777. Gratz Collection Case 4, Box 23, Historical Society of Pennsylvania, Philadelphia.
- 30 Jackson, 239; Ford, 19:242.
- 31 Jackson, 242.
- 32 "Diary of Robert Morton; 1:27.
- 33 Scull, 475.
- 34 Simeon Thayer to General Varnum, November 14, 1777. Gratz Collection, Case 4, Box 23; Historical Society of Pennsylvania, Philadelphia.
- 35 Jackson, 252, 254.
- 36 Ibid., 254-255.

- 37 Ibid., 257.
- 38 Scull, 477.
- 39 "Diary of Robert Morton," 1:28.
- 40 Scull, 477.
- 41 Jackson, 259.
- 42 November 16, 1777, "Orderly Book Kept by a British Soldier, S-Major Richardson, October-December 1777," Entry 24, War Department Collection of Revolutionary War Records, Record Group 93, National Archives Building; Scull, 418.
- 43 Scull, 418.
- 44 Joseph Plumb Martin, Private Yankee Doodle, Being a narrative of Some of the Adventures, Dangers, and Sufferings of a Revolutionary Soldier, ed. George F. Scheer (Boston: Little, Brown and Co., 1962), 86.
- 45 Ibid., 86.
- 46 Scull, 476.
- 47 Ford, 81, de Fleury's entry for November 10, 1977.

CHAPTER THREE

L'ENFANT AND HIS COMPATRIOTS: 1778-1800

An entry in Montresor's private journal, labeled "Blunders in America," places Fort Mifflin second on the list:

Lord Cornwallis going through an extensive wilderness, and at last all Prisoners. Example, vide Braddock. Clinton leaving Mud Island and all works standing in 1778, after being spoke to twice by me respecting blowing them up, for which Chambers were all prepared. At last forgot it. Also of the nation leaving all those on the Continent standing, and the Stores of Philadelphia full, and dismantled the works, without saying a word to me, the Chief Engineer....¹

Indeed, Montresor had recommended to Sir Henry Clinton the destruction of the "works standing" as early as May 10, 1778, supported for once by Howe; but no such action was taken.² When the British evacuated Philadelphia in June, 1778, the fort remained in much the same state as it was that morning in the previous November when the British ensign was raised over the smoldering debris.

Following the withdrawal, the American command was given to Colonel John Bull, the first of several commanders from 1778 until the end of the Revolution. Action was taken by the Executive Council to secure the fort and workmen were sent to make repairs.³ In September the Council ordered that "two pieces of heavy artillery be placed on the Fortifications at Mud Island,"⁴ and the following March, 1779, Bull was informed that the Council depended on his getting men and a supervisor to "repair the Banks of Mud Island."⁵ Col. Bull was requested on March 23, 1779,

. . .to employ suitable Workmen and Laborers to repair the Banks and Sluices at Mud Island, to complete Barracks sufficient for 50 men, with proper Apartments for Officers proportionate; also to construct as soon as possible, at least Six Chevaux-de-frize for different depths, and to do such other work as may be necessary to render the said Island healthy and commodious, and that money he advanced to him when necessary for the Payment of the Persons employed.⁶

In late March, Colonel Thomas Proctor, a previous artillery commander at the fort in 1775 and 1776, was requested to send twenty men and two cannon to Fort Mifflin. Soon after he ordered two twenty-four pounders and one eight-inch Howitzer, yet by May his regiment had been called back into the field; whereupon Congress requested men of the Pennsylvania militia to garrison Fort Mifflin.⁷ On May 4, the Executive Council appointed Major William Armstrong as "Paymaster of the Workmen and others employed at Mud Island and Billingsport, or other public works on the Delaware, and that he settle the account of Money already

advanced Col. Bull."⁸ Major Armstrong's account and receipt books, with fragmented entries covering the period 1776-1780, survive and refer to work done the previous month. There are receipts from April for "scantling and boards," carpentry and masonry "Ditches," and "Lime for the use of Fort Island" among other items.⁹

On May 14, 1779, Bull was requested to "proceed to execute the Plan of Fortification delivered in by Gen'l. D. Portail...and that the same be not in any respect departed from" without the Council's approval.¹⁰ Part of this scheme, which had been presented that day to the Council, survives in the form of a 1778 map of Mud Island with inset and overlay plans (see photocopy), drawn by L. A. de Genton, Chevalier de Villefranche, and signed by him and by du Portail. Louis du Portail was well known as "Washington's best engineer"¹¹ (Appendix II). He commanded both French and American engineers and was in charge of the construction of the nation's defenses and forts.¹² It seems likely that variations on du Portail's first overlay scheme were adapted immediately and put into construction, for by June 3, this Council paid \$2,000 to Colonel Bull "...in part of his pay for superintending the Works at Mud Island and Billingsport...."¹³ Armstrong's account books show entries on June 5 and 26 "for 800 poles for the use of the Fortifications on Fort Island" and "for Digging a well."¹⁴ Again, on July 7, Bull was paid 5,000 pounds for the wages of workmen employed at Mud Island and at Billingsport.¹⁵ Also in July, Armstrong's books show an order for "4,000 shingles...Inch and Quarter Boards...etc."¹⁶ Throughout these account books there are repeated entries for carpenter work, smithwork and references to materials (lime, tar, "hewing stone") for Mud Island and Province Island for the "President's house." An inventory of armament submitted to the Executive Council in mid-July reported that Fort Mifflin had only six mounted guns: one each of thirty-two and twenty-four pounders, two eighteen, and one four pounder.¹⁷ Despite this meager return, the presence of cannon and the repair of the fort relieved anxieties concerning the city's safety. Joseph Reed, president of the Executive Council, on September 29 requested that the officers at Fort Mifflin and Billingsport return their troops to town "because of unhealthy situations ..." and "that there is no great Probability of an Attack from the Enemy...."¹⁸ A guard of one sergeant and fifteen men was to garrison Fort Mifflin.¹⁸ Construction at the fort was soon stopped for the winter and the workmen were ordered to be discharged "...as soon as the Works erected are so far completed as to be secured from the weather."¹⁹ In November, Colonel Bull was paid \$7,700 "...for his services at Billingsport and Mud Island..." and in December the Council again approved a payment of 4,000 pounds for the workers' salaries.²⁰

In June, 1780, Major Armstrong was requested "...to repair the banks and finish the parapet so as to enclose the whole, and form a complete Redoubt...." He was also advanced 6,000 pounds to pay the workmen.²¹ Other payments for labor and materials amounting to over 10,000 pounds were authorized in September.²² The following month Armstrong made a request to the Council for an additional 15,000 pounds "...to defray part of the expences of the Fortifications on Mud

Island...."²³ As can be seen, large amounts of money were appropriated by the Council for the defense of the city. Not all of these funds were directed to the works at Fort Mifflin, however. Projects strengthening Billingsport and other river defenses were also supported by these same appropriations.

By the spring of 1781, the repairs and additions ordered by the Council two years before and planned by du Portail appear to have been either completed or stopped for lack of funds. Throughout the rest of 1781, only orders for small payments were authorized, possibly for repairs. Marquis Francois Jean de Chastellux visited Mud Island during this period and noted with satisfaction what he saw:

Taught by sad experience, the Americans have provided in future against the misfortunes which cost them so dearly. I saw them with pleasure extending the fortifications of Mifflin's Island, so as to enclose the fort on every side, which will be surrounded also by the Delaware in place of a ditch; and as the garrison will have a safe asylum in souterrains, bomb-proof, this fort may henceforth be deemed impregnable. The plan of these works was given by M. duPortail; Major Armstrong showed me them upon the spot, and I found they correspond perfectly with the just reputation of their author.²⁴

General Washington, in a letter to Congress on April 12, 1781, responded to fears that the British, under Sir Henry Clinton, might attempt to reoccupy Philadelphia. Referring to the American resistance during the siege of 1777, and possibly to the fort's recent repairs, he stated that "...if a tolerable share of labor and pains is bestowed upon the works of Mud Island, experience has shewn that nothing but a very large force determined upon a serious operation can affect the City of Philadelphia."²⁵

Although Captain Nathan Boys had been given command of both the fortifications and garrisons at Mud Island and Billingsport in February, his troops were discharged in July.²⁶ The next month, the Council advertised for an overseer that was "...acquainted with the repair of banks..."²⁷ hiring a William Smith on September 12, 1781.²⁸ Armstrong, Boys, and Smith made repairs to the fort throughout 1781 and 1782. In November of 1782, Smith agreed to accept the use of the island's land as compensation for his services. Overseers continued the management of the fort until 1795.²⁹

With the threat of British occupation decreasing and the advent of peace upon the signing of the Treaty of Paris in 1783, Fort Mifflin's military readiness became somewhat casual. The state of Pennsylvania and the young republic, working under the Articles of Confederation, turned to more pressing matters. The situation at the fort is illustrated by a 1784 "Report of Military Stores," which noted only four cannon mounted on carriages that were "...rotten and good for nothing...."³⁰

From this time until 1795, minor repairs of the fort were underwritten by the state and executed by the island's overseer or tenant. In October, 1788, the Executive Council was notified that "... the banks ... extending from the South east corner of the stone wall round westwardly to the south-west corner ... now needs repairs, and the foundations of the stone wall will be injured...unless it be done speedily."³¹ This portion of the bank, to be maintained by the state, was ordered repaired in March 19, 1789.³² In September of the same year a Committee on Repairs of Mud Island submitted a report detailing the materials required, the construction technique and the projected cost for repairing the rest of the island's banks. The Committee recommended "...to face the most exposed parts of the Bank with good stone, and raise them so high as to be above any tide or fresh that may reasonably be expected."³³ This proposal, however, was postponed for lack of money until January of 1791, when Governor Thomas Mifflin (Appendix II) submitted it for the approval of the Pennsylvania House. The measure was subsequently approved and the repairs completed by August.³⁴

During the 1790s European affairs following the French Revolution threatened to upset the neutrality of the young United States. Coastal fortifications were advocated and on February 28, 1794, a committee of the House of Representatives submitted recommendations of possible locations for such works, their design and cost.³⁵ Included among these was a recommended expenditure of \$8,737.94 to "...complete the present work for 48 pieces and a garrison of fifty men" at Fort Mifflin.³⁶

Following on March 20, the first federal authorization for defensive works was approved. The appropriations generated what is known as the First System of American Fortifications. The resulting forts were characterized by simple, inexpensive designs, often amounting to open works surrounded with earth parapets covered with sod from which mounted guns could fire.³⁷

Soon after this Congressional action, Secretary of War Henry Knox appointed Pierre Charles L'Enfant (Appendix II) as a temporary civilian engineer to direct the fortifications in Philadelphia and Wilmington. Writing on April 3, Knox informed L'Enfant that \$11,913.82 had been appropriated to the fortification of "Fort Mud Island and Philadelphia." He directed the French engineer to keep his design for the works realistic, emphasizing that "... everything now undertaken must be completed and be considered as the parts of a more general, perfect, and permanent plan, to be hereafter executed...." L'Enfant was requested to construct a work with earthen parapets sodded with knotgrass; if the soil was poor the parapets were to be faced with timber and then filled with earth. In addition, he was to position the gun carriages so as to fire over the parapets from batteries equipped with a "... reverberatory furnace ... to heat balls red hot...." The magazines within the fort were to be timber trussed with earthen roofs five to six feet thick, well ventilated, and able "... to hold one hundred and fifty rounds of powder for each piece of cannon." Any batteries that were constructed outside the perimeter of the fort were to be protected by redoubts. Finally, all work was to be documented by plans, sections, and elevations.³⁸

Replying on April 19, 1794, Major L'Enfant sent notes and sketches -- now lost -- and requested additional time "to mature my ideas on the subject." He suggested building a series of batteries, constituting an elaborate and ambitious scheme typical of all his projects:

...it becomes a question whether some other position in the river may not be found more eligible to make the establishment? But, until I shall have acquired all the information I need to support an opinion in the affirmative, looking upon Mud Island as the spot determined upon, the only method I see of making it answer the object, would be, to take advantage of a bank, to erect a second fort..., the defence of which would co-operate with those of Mud Island, as may easily be seen on the small sketch of the river to which these notes have reference..., all grand operations must now be first directed toward gaining the pass for shipping, which, consequently, would determine an operation against the defence of Mud Island, or of any other situation in the river, on a very different principle than was once carried on there in 1777.

He further recommended that an entirely new fortification be built, pulling down all the former work, including Montresor's stone wall:

The defect of that old fort, not only lay in the configuration of its line of defence, which as General Duportail well observed, are too short for mutual protection, but its situation is altogether so ill judged as to be enfiladed from every point from whence an attack is the most likely--a disadvantage in no manner remedied by the improvement proposed by that officer, who surely did not see the situation with a proper attention, or he must have observed, that no part of the addition which he planned would have been more secure than the old; no work, indeed, would be possible to contrive making the old one serve, which could be made a stand even against a few gun boats in the west channel; necessarily then, rejecting all idea of connecting any new work with the former one, I would establish the forts and batteries back of the wall now standing, making this serve as a cover, until the work is sufficiently advanced to mount the batteries, after which it would be pulled down, making the stone serve the construction of the principal forts.

As to what relates to the construction of the batteries and forts, the island being mostly overflowed and of a soft clay bottom, it will necessitate to some expense to lay on a solid base in logs framed in the manner of a grate under the whole, with a kind of upright framing to receive the platform; observing that, however temporary the object of the batteries now to be made may be, the time of which they may be of use, perhaps distant, may render them then out of repair, and consequently useless, or that being ever so near at hand, a defect in the superstructure being to accelerate their destruction, their object would be unanswered, and the

confidence placed in them being disappointed, the sparing of proper materials and of the labor should, in both cases, be dearly repaid by the loss of valuable lives, and the disasters attending a weak resistance.³⁹

L'Enfant wrote to Secretary Knox in July, 1794, reporting that he was "... on the point of sinking part of the grand wharves, on the middle bank, which is about framing, and staked out in the water..."⁴⁰ A letter, written by a Philadelphia citizen in 1826, contains a description of L'Enfant's activities at the fort:

...some Gentlemen had been [on] a committee of ye Assembly to superintend the public works at Mud Island Fort -- they had been down to survey what was doing by Major L'Enfant, a French Engineer who had undertaken to complete the fortifications, and they complained that he had spent all the money destined and judged sufficient for the business, in cutting up the Island so that a cart could scarcely be driven in any part of it.⁴¹

Realizing that the sum appropriated by the government in April would be insufficient for the works as planned, L'Enfant conferred with Pennsylvania Governor Thomas Mifflin for an additional sum of \$6,000 to be granted by the state. He also met several times with a committee of the Pennsylvania legislature concerning the fortification of the Delaware River.⁴² Referring to these meetings in a letter to Treasury Secretary Alexander Hamilton on September 15, 1794, L'Enfant stated that unless the government could procure additional funds "... to continue the work for two months longer, the whole must stop before any part is brought to that state of perfection necessary to be guarded against winter, and answer to some object of defence."⁴³

Proceeding with his work, despite the question of funding, L'Enfant recorded his progress in a September 25 report. Beginning with a description of the method for sinking foundation piles for the walls, batteries and wharves, he continued with a summary of other work completed:

The new grand battery extending towards the main channel, under cover of the wall parapet, is but progressed so far as to have the wharf, which is its foundation, completely raised on an extent of about 700 feet, sunk in a depth of from four to fifteen feet, partly in the mud and partly in the stream current. Behind this a large esplanade is formed over the deep swamp, opposite to the old barracks, filled in to the height of the wharfs, level with the high water mark; which left this part to be raised, all over, to about three feet more (making allowance for the natural settling of new made ground), before the parapet can be raised and the battery properly mounted; now, the guns being only laid along side the edge of the wharf to forward its settling.

The next work is the old wall rampart of about 290 yards long. Of that wall, the remains of the old fort, 160 yards, has been banked inside, ready to form a parapet and rampart platforms; the whole about forty-five feet broad and on an average ten feet high, which left this part about seven feet still lower than it ought to be to mount the cannons upon. Adding to this, a portion of a line of intrenchment, which is just beginning, on an extent of about 140 yards, but which is yet one half below the height it is to be. They altogether comprehend all what has been attempted of the plans approved of, for the improvement of the fort on Mud Island, and the construction of the new one intended upon the middle bank.

He closed by listing his grievances regarding working conditions and the lack of funds.⁴⁴ Again, on September 30, he wrote a Treasury agent requesting a promised \$2,500 "... to complete the sinking of the remainder part of the frame which has been cut away from the wharves already sunk."⁴⁵

On December 17, the Treasury Department finally released the previously allocated sum of \$11,913.82 to their "agents for fortifications" in Philadelphia.⁴⁶ On December 19, 1794, the War Department sent to Congress the reports and plans of various seaport fortifications then under construction. Included among these was "One plan and map, and a memoir, submitted by L'Enfant for Ft. Mifflin."⁴⁷ With this submission, L'Enfant's connection with Fort Mifflin ended.

At the time of L'Enfant's Fort Mifflin appointment in 1794, Stephen Rochefontaine, a French military engineer instrumental in laying siege to the British at Yorktown, was appointed to direct coastal fortifications in New England (Appendix II). After L'Enfant's involvement ended during the winter of 1794-95, Rochefontaine was apparently asked to complete the fortifications at Fort Mifflin, which were ceded to the United States by the state of Pennsylvania in April of 1795.⁴⁸ His plans involved alteration of the previous designs of Duportail (1779) and L'Enfant. Rochefontaine's association with Fort Mifflin was itself quite brief; on June 24, 1795, he assumed command of the newly formed Corps of Engineers at West Point, a position he held until May, 1798.

Although not directly supervising the construction at Fort Mifflin, Rochefontaine's work during 1795 is described in a letter from Secretary of War Timothy Pickering to the Senate, dated January 18, 1796:

A large pier, as the foundation for a battery, on a sand bar, opposite Mud Island, to make a cross fire, has been completed. A fort, on Mud Island, is about half done, and a citadel has been erected to complete the fort, and on a plan much more circumscribed than was first projected. The expense is estimated at fifteen thousand dollars.⁴⁹

(The amount actually expended during 1794 and 1795 was almost \$26,000, far exceeding the original appropriation made in 1794.⁵⁰) The plan described by Pickering as "first projected" was presumably the L'Enfant scheme and the "more circumscribed" proposal that of Rochefontaine.

Over a year later, on June 6, 1797, a renewed funding request asked for \$40,000 to complete this same battery and the still incomplete work at the fort itself.⁵¹ By August, 1797, then Secretary of War James McHenry instructed yet another French engineer, Major Louis de Tousard (Appendix II) to report at Fort Mifflin with orders to "... finish the Fort, on a plan projected by Lt. Col. Rochefontaine." Tousard was instructed to obtain Rochefontaine's plans, make any necessary corrections and compile an estimate of funds necessary. In addition, he was instructed to assume command of the fort's garrison as well as instruct the officers in "... those branches of science necessary to the artillerist and the engineer."⁵²

Arriving in late August, Tousard immediately set about to complete the fortifications. On August 27, he received orders "...to send a number of hands to remove and Pile the Live Oak on Mud Island," and to provide accommodations for the laborers.⁵³ In a report of October 7, he stated that it was "... so difficult to fix the semi-circular pieces upon which the Gun Carriages run ...," and that he thought it advisable "... to make use of some of the live Oak for that purpose, as well as for getting a few sawed for making the joists of the platform."⁵⁴ McHenry reported to Congress on February 27, 1798, that "The works, as far as they have been erected, were composed of good materials, and put together in such a manner as to promise long duration & utility." He added that almost \$24,000 had been spent on the fort since the funding request of 1797.⁵⁵

While directing this work from his headquarters at Fort Mifflin, Tousard also traveled up and down the coast between Massachusetts and the Carolinas, inspecting various garrisons, designing fortifications and testing cannon produced for the government.⁵⁶ By 1798, however, work at the Fort was far enough along to warrant the setting of two white marble date stones over the northeast and southeast sally ports. These were inscribed:

ER. A.D.M.DCCXCVIII.
JOHN ADAMS. P. U.S.
JAMES McHENRY Sry. OF WAR
on the Plan of Major Lewis Tousard.

In July of 1798, McHenry requested Tousard "... to repair to Baltimore... and... view the existing works at Wetsone [Whetstone] Point, and lay down a plan."⁵⁷ Referring to this appointment in a letter the following year, he noted, "I was taken from the command at Fort Mifflin & charged to complete defence of the capital Eastern Harbors."⁵⁸ With this new assignment the command of the fort was given to Captain Theodore Memminger,⁵⁹ yet Tousard returned periodically for inspections.

During an inspection trip in June, 1800, Tousard requested a report from Captain Memminger detailing the state of the still unfinished fortifications, an estimate of sums required for their completion, and specific information regarding "The Gate Way, the parapet and rampart of the unfinished Bastion, the other side of the Watter Battery and the indispensable repairs of the capital banks."⁶⁰ In December of 1800 Tousard was appointed inspector of artillery and, in April of the following year, he was selected by President Adams to direct the establishment of a military academy at West Point.

At the close of the eighteenth century, the work at the fort, laid out by a succession of French military engineers, was nearing completion. In 1795, the fort was formally named after Thomas Mifflin, Governor of Pennsylvania. A journal kept by a Portuguese traveller, Hypolido Jose da Costa, contains a description of the fort as it appeared in December, 1798:

It consists of three batteries set on stone walls two arms' lengths in height. One battery faces the river or channel through which the ships pass. Another dominates the shore, while the third looks down the river. Since the walls are only two arms' length high, the batteries fire almost at the water level. Inside there is a lookout which rises a little higher, where there is a big flagpole from which they signal the city. Facing up the river there is an esplanade. The whole fort is surrounded by a moat.... This fort...is now of very little use. On the shore nearby there is a hospital...."⁶¹

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1. Scull, 137.
 2. Ibid., 491.
 3. Earl I. Brown, "Important Data Pertaining to Historic Fort Mifflin, Philadelphia, Pennsylvania, 1771-1932," United States Engineer Office, 1932.
 4. PA, CR, 11:572.
 5. PA, First, 7:240.
 6. PA, CR, 11:725.
 7. PA, First 7:270-271, 298, 365; PA CR, 11:756.
 8. PA, CR, 11:767.

9. "Accountbook" April 6, 1779-January 15, 1780, and "Receiptbook" March 4, 1778-December, 1778. William Armstrong Papers, Manuscript Department Historical Society of Pennsylvania, Philadelphia.
10. PA, CR, 11:777.
11. George Athan Billias ed., George Washington's Generals (New York: William Morrow & Co., Inc., 1964), xiv, 232.
12. Francis B. Heitman, Historical Register of Officers of the Continental Army During the War of the Revolution, April, 1775, to December, 1783 (Washington: The Rare Book Shop Pub. Co., 1914), 208.
13. PA, CR, 12:13-14.
14. Armstrong, June 5 and 26, 1779.
15. PA, CR, 12:40.
16. Armstrong, July 14, 1779.
17. PA First, 7:562.
18. Ibid., 720.
19. PA, CR, 12:146.
20. Ibid., 180, 188.
21. Ibid., 402-403.
22. Ibid., 468, 480.
23. PA, First, 8:599.
24. Francois Jean de Chastellux, Travels in North-America, in the Years 1780-81-82 (New York: White, Gallaher & White, 1827), 122-123.
25. PA, First, 9:71-72.
26. PA, CR, 12:627, 13:17.
27. PA, CR, 13:30.
28. Ibid., 13:54.
29. PA, CR, 13:91, 121, 296, 429, 444, 449, 691; PA, First, 11:139-140, 142-143, 12:407-412.

30. PA, First, 10:284.
31. PA, First, 11:404.
32. Ibid., 561.
33. Ibid., 617.
34. January 27, 1791, Library Company Collection (Thomas Mifflin Papers), Manuscript Department, Historical Society of Pennsylvania, Philadelphia; PA, First, 4:162.
35. Emanuel Raymond Lewis, Seacoast Fortifications of the United States: An Introductory History (Washington: n.p., 1970), 21.
36. American State Papers: Documents, Legislative and Executive, of the Congress of the United States Class V "Military Affairs" (Washington: Gales & Seaton, 1832) 1:63. Cited hereafter as ASP.
37. Lewis, 19.
38. ASP, 1:82.
39. Ibid, 1:82-3. L'Enfant to Henry Knox, April 19, 1794.
40. ASP, 1:85-86.
41. John Fanning Watson Papers, Manuscript Department, Historical Society of Pennsylvania, Philadelphia, Deborah Logan to J.F. Watson, 1826.
42. September 11, 1794, Digges-L'Enfant Morgan Manuscript Division, Library of Congress, Washington, D.C; ASP, 1:83.
43. ASP, 1:83-84. September 15, 1794.
44. ASP, 1:84, September 25, 1794.
45. September 30, 1794, L'Enfant to Tench Francis, Digges-L'Enfant-Morgan.
46. ASP, 1:107, December 17, 1794.
47. Ibid., 1:72, December 19, 1794.
48. PA, First, 12:407-412: 1856 resume.
49. ASP, 1:111, January 18, 1796.
50. Ibid., 1:116, May 9, 1796.

51. Ibid., 1:118.
52. August 2, 1797, Letterbook of Anne Louis de Tousard, 1796-1802,
The Eleutherian Mills Historical Library, Greenville, Delaware.
53. Ibid., August 27, 1797.
54. Ibid., October 7, 1797.
55. ASP, 1:119.
56. Norman B. Wilkinson, "The Forgotten Founder of West Point,"
Military Affairs 24 (Winter 1960-61):177-188.
57. July 7, 1798. Letterbook of Anne Louis de Tousard.
58. Ibid., June 6, 1799.
59. Ibid., March 31, 1800.
60. Ibid., June 28, 1800.
61. Robert C. Smith, "A Portuguese Naturalist in Philadelphia, 1779,"
PMHB 78 (1954):71-106.

CHAPTER 4:

THE WAR OF 1812:

ITS INFLUENCE ON FORTIFICATIONS

1801-1860

At the end of 1801, President Thomas Jefferson reported to Congress the expenditures of the War Department for the fortification of Philadelphia. During the eight years between 1794 and 1801, the department alone spent over \$62,000, 90% of which was spent during the last four years; additional funds allocated through the Treasury department are unknown. Although it is difficult to determine exactly how much of this amount was expended upon Fort Mifflin apart from other works in the Philadelphia area, it is clear that most of the construction at the fort had already been accomplished by 1798. A report to Congress of February, 1802, by Major Jonathan Williams (Appendix II), Inspector of Fortifications and first Superintendent at West Point, discussed the state of the seaboard forts, and included a description of Fort Mifflin. The written description, a chart, and armament inventory provide an excellent overview of the fort at the beginning of the nineteenth century. A complete transcription follows:

The Fort is erected on the Southeast extremity of the Island. It may be divided in that part built by the British & finished Since by us--& in that which has been added of late years on the North & West sides. The first part is formed of four redans defending the river on the south & East. The Walls generally eleven & a quarter feet high are of large Stones perfectly cut & put together--in fact they require no repair whatever; their extent is Six hundred & sixty six feet along the Cordon & they are Strengthened at proper intervals by counterforts. The Second part of the Works viz., that which has been added on the North & West Side is composed of two redans towards the West & of a regular front towards the North or land Side; That front consists of a Casemated Bastion. N.E. a Curtain of ninety six yards & a full half Bastion N.W. forming thus a kind of horn work. The Wall all round has a good brick revetement, with a handsome white Stone Cordon--the breastworks generally eighteen feet thick at top & six feet and an half high including the banquette. One foot of the former height is lost by the settling of the earth & sodding which at the Angles at least, ought to be rectified next Spring--These new Works extend along the banquette One thousand & fourteen feet. They have a Sally Port on the West with a Small Bomb proof for guards on each Side of the gate, & a similar one in the Center of the Curtain, That on the West, wants to be complete, thirty cubic feet of brickwork, & thirty & a quarter feet of Stone topping, four, by ten. Casemate No. 1 used as a Guard house has two large bake ovens--its dimensions are fifty feet in length, Eighteen in width & twelve

high in the center of the arch--it is well floored--is apt to leak in the Spring. N^o 2--used as a powder Magazine being very dry & isolated, is sixty eight feet long, seventeen and an half wide, & twelve feet high in the center of the arch--No. 3-(empty): is fifty feet long, eighteen wide, twelve high, has a good underfloor & a chimney. No 4: (empty): is forty three feet long, seven wide, & seven and an half high, no chimney. N^o 5: (empty): is thirty four feet long, ten wide, & seven high, no chimney. N^o 6: (empty): thirty nine feet long, seven wide, & seven high, no chimney. There is a Water battery extending nearly East & West which rakes the shipping in front or rather en echarpe as it is coming up--it mounts Eight eighteen pounders on rampart Carriages, & is provided with a furnace to heat the Shot -it was covered lately by a good Epaulement which prevents shipping abreast from enfilading it, rather battering it en ranage.

The Buildings are six in Number, 1st: The Citadel of brick, one story high, seventy feet by thirty four, N^o 2: One row of brick barracks, One hundred & seventeen feet long, twenty seven and three fourths feet wide - only one Story, divided in Seven rooms - five of which may accommodate each twenty five Men. N^o 3: A very indifferent boarded building, forty two feet by twelve. N^o 4: The Old Barracks, a building of Wood, fifty feet by twenty, has an excellent foundation of cut Stones, with good cellars, but the upper part is so decayed that the Chimneys are all that prevents it falling in. N^o 5: The Artificer's Shop, a wooden building, forty two by twenty feet. N^o 6: The Blacksmith Shop, a brick building, two fires, twenty feet --- by nineteen. Besides the above, there are three Small Sheds in the Fort, one occupied by a soldier with his family - another used as a Laboratory - the third as an Apothecary shop - Out of the fort is one hospital composed of three Small rooms, twelve feet by fifteen, it is a good wooden building but too Small. One Small house, of wood, very old, divided in two rooms occupied now by the sick who had no room in the hospital. One Small house at the Picquet on the North side of the Island, it is very old & decayed, serves for the soldiers who attend the wharf. The brick barracks may contain One hundred & twenty five men with N.C. officers. The Building N^o 5, forty men, total One hundred and sixty-five men - .two companies-. The remainder of the Buildings are barely sufficient for the purposes they are appropriated to.

Major Rivardi, commanding officer of Fort Mifflin, filed this report:

The Island is so low that is is more or less commanded by the surrounding grounds, State Island on the North, the Jerseys on the East - Hog Island on the South, & the Pennsylvania Shore on the west; however the distance of these several points is such that if an Enemy were to occupy them, he could do but trifling, & uncertain execution on the works.

I have this fall extended from the center of the Curtain to the North end of the Island a Causeway, which is low enough to be overflowed if necessary but at the same time of sufficient height to afford a dry walk, & to drain the adjacent morasses - As to fresh water none is to be had but that of the Delaware, which when clarified through a filtering machine is extremely good:--we have constructed one which Supplies abundantly the whole Garrison. It would be easy in case of a war to have one or two more in places which could not be exposed, & the expence is trifling. The Cordon of the first part will have to be made new, it was constructed of Timber which is so far decayed that the breastwork over it is badly supported. The repairs on that part of the works can all be done by the Garrison except the cutting & placing Six hundred & sixty six feet of stones for the Cordon. The Casemated Bastion considered as a Work of defence has some defects--1st, The flanks are too short, being only seventeen yards long, 2d. The flanked angle much too acute & 3d. the gorge too narrow. It is probable however that those defects were difficult to avoid without injuring the form and capacity of the bombproofs underneath. The Walls of the bastion are higher by two feet than the remainder of the new works being thirteen & an half feet & the Curtain &c. only eleven and an half. The bombproofs are six in number and well arched. The large Bombproofs having twelve feet in height could in time of War have a double row of Bunks, or a Gallery so as to accommodate easily one hundred men each. The Water Battery which has its guns only six and an half feet above the level of high water is well calculated for all the advantages of the ricochets - it ought however to be covered behind by an epaulment or a branch directed to the east Shoulder of the casemated bastion - The Garrison could perform that work & close it towards the river by a tambour or traverse tournante, it would require only two thousand feet of square timber, a foot by fourteen inches for a foundation & two sets of Muddiggers to fill the inside of the Coffre as high as three feet from the water mark, the remainder could be done & would be better in sods.

The inside of the Fort is now So levelled & Sloped that after the heaviest rains the water drains in a few hours- Next Spring it can be made perfectly clean & dry, if a large scow or flat bottomed boat can be obtained for the purpose of fetching gravel from Billingsport, where the U.S. have a few acres of the shore where it is got with ease; (We have a scow but it is so old that it would be dangerous to trust men in it any distance from shore): - I omit speaking of the main gate which is not finished yet, as I understand by General Irvine that the materials are paid for, & as he had some time ago estimates made, which he no doubt transmitted. Two hundred & five Men would man the Batteries of the Fort which occupy a space of Two hundred & twenty two yards exclusive of the Water Battery fifty yards- but an allowance should be made for a reserve, Officers & N.C. : Officers. The remainder of the Works if to be manned throughout their extent viz. Three hundred & thirty eight yards would require at one file per yard, Six hundred & seventy six men,

making the whole necessary to man Fort Mifflin Eight Hundred & Eighty one Men exclusive of Officers & reserve. The side of the ditch toward the Works, at least next to the saillant Angles, ought to be secured by a Revetement of any kind, which would prevent the Water from washing the ground near the foundations of the walls. There is one place in particular where the new works are connected with the old stone wall, which appears to have suffered from its being too nigh the water--Slabs of lasting timber: (say fifteen hundred feet): would answer every purpose & could perhaps be obtained from the yards of the United States in Philadelphia.

10 32 p: Mounted
18 24 p: Mounted
9 18 p: mounted
2 9 p: dismounted
1 6 p: dismounted
2 3 p: dismounted
2 24 p: Brass field mounted
1 6 p: Brass field mounted
4 other Calibers not mentioned dismounted
4 10 1/2 Inch Mortar ²

Williams also reported an estimate of funds thought necessary -- \$1,000. -- to complete the fort. ³ During the next few years, relatively little construction work occurred at Fort Mifflin. A garrison of seventy-five men was stationed at Mud Island during 1803; this number was reduced to forty one in 1804. ⁴ A report dated February 18, 1806, described Fort Mifflin as a "regular enclosed work, with batteries, magazines, and barracks, principally erected in the years 1798, 1799, and 1800," and also supplied information missing in the 1801 financial report:

1794 -	\$ 5,142.00
1795 -	2,382.00
1798 -	12,576.52
1799 -	28,000.00
1800 -	15,000.00
1801 -	1,169.25
1803 -	91.32
	<hr/>
	\$ 64,361.09 ⁵

In 1805, President Jefferson had recommended the fortification of the nation's coastal cities, reviving the country's interest in military construction programs. ⁶ In May of 1807, Jonathan Williams, now a lieutenant colonel, was requested to inspect Fort Mifflin, and "ascertain what [was] necessary to be done, for repairing damage lately done by storms, and for preventing inroads in the future." ⁷ As inspector of fortifications, Williams' obligations constantly called him away from his duties as superintendent of West Point, especially after the spring of 1807 when he began a tour of coastal defenses.

On May 20, he reported his findings to the War Office in a document that has survived along with two accompanying drawings. Whereas the previous 1802 inspection revealed information regarding detached buildings on Mud Island, this report is chiefly concerned with the state of the walls, the various batteries, magazines and wharves. He noted that some of this work was "in a very decaying state," but for the most part, the fort was sound. He found, however, the "Gate in a very imperfect State. The arch above never having been covered is beginning to decay, and the piers at the side are carried but two thirds up."

The river battery was his chief concern, it being in a ruinous state and "totally uncovered in its rear, and exposed to the whole reach of the River...." He suggested an annex to this battery, indicated by a dotted line on the principal drawing, stating that this would act with the existing construction to "form a Ravelin, each Forecovering the other and both together covering the entrance of the fort which is much exposed." The dimensions of the subterranean ("souterraine") of the casemates below the east bastion are again given and approximate the existing casemates. The most interesting information connected with this report are the notes related to Montresor's stone wall. On his drawing Williams indicated the extent of this stone wall with a blue line, marking the adjoining brick masonry wall, built at a later date, with a red line. He wrote that "on coming to the South angle, and at the most Southern & eastern side of it, where the brick work finishes and the old stone Work begins, the salient point has settled nearly one Foot, then [?] appearing about that difference between this point & the next reentering angle with respect to its level, & the wall is considerably cracked in two places. All stone work is in excellent order, and is an example of the importance of making solid Work in the beginning." ⁸

Aside from the maintenance of a few fortifications on the Atlantic coast, including Fort Mifflin, very little actual funding was appropriated for defense, despite the efforts of Jefferson and others to secure protection for the country's chief harbors. An incident in the month following Williams' inspection tour, however, precipitated a new program of fortifications. The Chesapeake - Leopard affair grew out of an incident involving the commander of the American frigate Chesapeake who refused to allow his ship to be searched for British deserters, whereupon the British man-of-war Leopard attacked and impressed three American seamen. Hostility toward the British, provoked by their interference with neutral trade and aggravated by constant impressment, spurred new fortification projects. In 1807, however, the men in charge of design and construction "... were regular officers of the Army, most of them freshly out of the new academy at West Point." ⁹ The result was that this phase of American fortifications -- which has been referred to as the "Second System" -- was more organized than the earlier defensive program, but lacked the coordination of design skills and construction experience of the French engineers.

The Second System had little effect on Fort Mifflin, as the works were considered adequate for its defensive role. Routine matters occurred during the years immediately preceding the United States' declaration of war against Britain in 1812. Captain James Read of the Second Artillerists in October, 1808, requested materials to complete the guard house.¹⁰ President Jefferson wrote to Congress the following January that the works had "received considerable repair and the cannon mounted."¹¹ At the close of 1809, Congress was notified that the fort consisted of "an enclosed work of masonry, defended by bastions, calculated for sixty guns, twenty-nine mounted; a water battery of eight guns mounted, with a brick magazine, and barracks for one hundred men, including officers."¹²

War was officially declared on June 18, 1812, though in March British squadrons had appeared at the mouth of the Delaware. In anticipation of a British attack on Philadelphia, two volunteer groups consisting of Captain Jacob Fisher's Junior Artillerists and Captain William Mitchell's Independence Blues, totalling 160 men, occupied Fort Mifflin on March 23, 1813.¹³ In April Captain James N. Barker of the United States Army relieved the volunteers and strengthened the fort against a siege which never occurred.¹⁴ The United States suffered initial military setbacks until the end of 1813 when a series of naval victories and Commodore Oliver Perry's success over the British on Lake Erie bolstered American morale. By the summer of 1814, following Napoleon's defeat, however, England was free to direct full attention to America. Invading near Washington, the British burned the Federal City but were defeated at Fort McHenry, which defended the Baltimore harbor. The treaty of Ghent ended the war on December 24, 1815.

From the aftermath of the war came the first organized program for permanent seaboard defenses, known as the Third System. To implement this program a special board of military engineers met to discuss organizational policies. The group was headed by a French engineer, General Simon Bernard, and included one member from the navy and two army engineers, one of which was Brevet Lieutenant Colonel Joseph G. Totten (Appendix II). This group was charged with the designation of potential fortification sites, their relative importance in the overall system of defenses, the establishment of basic design guidelines and the review of specific sites and the resulting plans of the engineers in charge. With this group, a professional and centralized authority was created to direct all aspects of seacoast fortifications.¹⁵

Organized in late 1816, the board later recommended measures that were already being taken the previous summer at Fort Mifflin. Samuel Babcock, Captain of Engineers, reported on June 20, 1815, that in order to place Fort Mifflin in the best state of defense, "certain measures were required: Traverses to secure certain of the Faces from enfilade..., the water battery outside, be rebuilt of Masonry similar to the west Battery, New York..., the ditch to be widened and deepened; new and moveable Bridges; Gates and new Bombproof to be constructed."¹⁶

Another Babcock report sent on December 4, 1815, contained "... an Estimate and Plans for additions and repairs..." and included a rough plan of the fort (see photocopy) with each building identified, presumably one of several sheets which accompanied the report. Babcock commented in the report:

The Bombproofs which exist at present are in a state little fitted for the uses they were intended for, being very damp, dark and approaching to decay: The one I have projected is intended to serve as a Guard house and Prison; to be situated parallel to the revetement, one side facing the parade the other joining the rampart the arch to be covered with Earth--with small circular apertures grated, instead of windows which will furnish a supply of light and fresh air to make it dry and healthy: the ditch to be widened so that the narrowest part shall not be less than 30 feet: traverses and merons to be made wherever they are wanted and the water Battery raised and completed with Earth. The Bridges contemplated are 32 feet long 12 wide with draws of 10 feet. The walls of Ft. M. being low, and in most parts badly flanked, I think it would be adviseable to plant a line of Palisades on the interior brink of the ditch throughout it would at least be an additional obstacle to desertion.¹⁷

From 1819 comes another important drawing entitled, "State of Pennsylvania, Fort Mifflin," (CGM #65) signed by Guillaume Tell Poussin, a Captain of the Topographical Engineers (Appendix II). It is drawn to scale and indicates most of the present day buildings, or at least some structures in the same position. Sections cut through the rampart walls are shown as well. On November 6, 1819, Major William Linnard (Appendix II) sent to Quartermaster General Thomas Jessup two proposals for a new hospital at Fort Mifflin. The first scheme is documented by a plan and elevation while the second has only a plan. Linnard noted in the report that "The present Hospital ... is a miserable frame building & would cost more to repair it than it would be worth when done, ... a permanent one is thought to be necessary by the Surgeon's & Officers of the post." The report continued with a discussion of the drawings of the proposed hospital.¹⁸

The fortifications board made its first report in 1821, giving little notice to forts of the pre - 1816 period. They were to be "preserved, but not as part of the system."¹⁹ Among these was Fort Mifflin, which lost its role as the primary defense for Philadelphia to a new fortification forty miles downriver on Delaware's Pea Patch Island. Major Samuel Babcock submitted a thorough description at the time of Fort Mifflin's deactivation. Writing to Colonel Walter K. Armstead, Chief Engineer, on October 31, 1820, he described the fort: "its figure (except one front composed of a Bastion Courtine and half bastion) irregular; the revetement is part of stone and the remainder of Brick; extent of perimeter 813 yards; height of revetment 10 feet (nearly) rampart and parapet of earth...." The thickness of the parapet was described as:

...sufficient to resist cannon shot; surrounded with a wet ditch: with a range of brick barracks capable of containing 2 Companies--a range of quarters for officers 96 by 28 feet and two stories high built in 1814, a Brick building for the Commandant Magazine 2 bombproof under the Bastion, and several small ones in the gate ways; several small frame and 3 furnaces for heating shot. Outside the main work a water battery of 8 guns, of earth and open in the rear; and opposite the fort in the River at about 400 yards distant a battery for 6 Guns constructed on a Pier originally intended for the use of shipping, with a thick parapet of timber pierced with embrasures; the battery enfilades the channel and was provided with a furnace. The Work generally (except the bombproofs which are damp and decaying in consequence) in pretty good repair. The original design of the work was no doubt to defend the city of Philadelphia against a maritime attack.

In 1816 part of the ditch which was very narrow, was widened so as to make it not less than 30 feet in width; a traverse of earth erected in one of the most prominent points of the parapet to secure from enfilade a battery; also a permanent brick Guard house including a place of confinement 44 by 22 feet.²⁰

Complete abandonment of the fort occurred three years later. William Linnard wrote to General Jessup on October 9, 1824, that when "The troops at Fort Mifflin leave that Post for Fort Delaware on Tuesday next ... there will not be a single person left to take care of the public property...."²¹

On September 15, 1826, the office of the Pennsylvania governor contacted Secretary of War James Barbour concerning the 1795 contract which ceded the island to the United States. Since the governor's office was interested in the military post, the Secretary was asked if the state could take possession:

The island and works may be of considerable importance to Pennsylvania in various ways:--As a place of training volunteer artillery and other corps; as a depot for military stores of the state; and if the fortifications are kept in a proper state of repair and preservation, as a defence to Philadelphia in time of war. The object, therefore, in making these inquiries is, in case the island and fort are no longer to be held by the United States as a military post, and no objection is offered to their being occupied by the state, that such immediate measures may be taken for the purpose, and to prevent injury and destruction to the buildings and works, which will necessarily be very much exposed and liable to depredations, as may be considered necessary and proper, and within the power of the executive.²²

The War Office replied on September 20 and again on October 6 that the fort would be "...retained by the United States...as a second barrier in the plan of fortifications projected for the defense of the river Delaware; though it is not deemed of such importance in this respect, as to deserve any additional expense for its improvement."²³

In this framework matters stood for nearly a decade. Contemporary records are few, and the fort seems to have been forgotten. Possibly it was in the charge of an overseer and maybe a handful of men. Decay set in rapidly. Then, at the beginning of 1835 the Secretary of War was contacted by Pennsylvania Congressman Horace Binney who asked about "... the expediency of making an appropriation for the repair of Fort Mifflin... in case of an unfavorable change of our foreign relations."²⁴ On the same day the Engineers Department had written to the Secretary from Philadelphia, describing the condition of the works on Mud Island: "the scarps are in excellent preservation, the parapets and ramparts require considerable additions to suit them for artillery, all the platforms have to be rebuilt, the magazines refitted anew, furnaces rebuilt in part, the gates of all the entrances renewed, quarters, bakery etc., refitted for the accommodation of the garrison. As regards the battery on the pier, nothing of it remains; it will, therefore, have to be rebuilt." An estimate for these repairs amounted to at least \$75,000.²⁵

A portion of this sum was appropriated and on January 13, 1836, window sashes and flooring were repaired.²⁶ On January 20, Richard Delafield, Captain of Engineers (Appendix II), reported that the magazine and gun platforms were ready and that the iron work of "three large gateways" was being completed; a "small caserne under the Rampart" was being completed as a magazine, bunks for 200 men were being made in Philadelphia, and the bakery was in order. The earthworks for the ramparts and parapets were scheduled as the next step.²⁷

In a report of November 22, 1836, Delafield described the state of the fort's deterioration when he first came to make repairs and included the amount spent during 1836. The early masonry wall had proved excellent; all woodwork, however, was rotten and the officers' and soldiers' quarters required major renovation, "including floors, lathing, and plastering and roofing, doors, windows, sash and casing . . ." the scarp walls were repointed and, notably, 416 feet of the wall were raised two feet in height; the roofs of the buildings were covered with zinc and "... gun sheds for artillery and carriages as shall not be mounted in the battery ..." were built.²⁸ (A similar description, dated September 30, 1836, is provided in full in Appendix III.) The Engineer Department at Philadelphia reported to the Secretary of War on November 28 that "The whole work will probably be completed this fall, except, perhaps some painting and the erection of gun-sheds, which may be arrested by unfavorable weather."²⁹ On the same day Delafield transmitted his accounts including specific expenditures for "... 12 columns for front Quarters ...," grates, stoves, shutters, locks, sash; various paints, such as white lead, yellow ochre, green, pot ash, lamp black; and miscellaneous items including marble hearths, stone copings and plinths, and roofing materials.³⁰

Early the following year, major tasks waiting completion included reforming the ramparts, leveling the terreplein and excavating a ditch to be crossed by two bridges. Minor jobs included the completion of some outbuildings and a general cleaning up.³¹ The annual report of the War Department, submitted on November 28, 1837, noted the completion of these tasks:

During the present year a gun shed has been erected, the terreplein of the fort has been graduated and gravelled, pavements have been made about the quarters, some necessary out buildings erected and all the wood work of the buildings painted; a mess-house and mess-room are now fitting up, and, on their completion, the fort will be ready to receive its garrison.³²

On December 2 the Secretary of War Joel R. Poinsett notified President Martin Van Buren that the necessary force required to arm and garrison the fort were fifty-three guns and fifty men in times of peace, 265 in wartime.³³

Minor construction and the completion of previous work orders occurred during 1838 and by February, 1839, conditions were reported as generally good. Miscellaneous items were noted, including cranes for two kitchens of the Commandant's House, which also showed dampness in the plaster of the "upper rooms." "Four of the five rooms" of the Soldiers' Barracks had been provided with coal stoves "... in place of the large and uncomfortable fireplaces..." In addition, the artillery shed was reported in good condition.³⁴ In August, 1839, Henry Belin reported to Colonel Totten, the Chief of Engineers, that the works were in order.³⁵ On October 1 he wrote again, stating the work was complete with the exception of "... leveling and trimming the ramparts and parapets ...; and all faces of the main work ... except the one of the northeast bastion and one of three guns are complete..."³⁶ These last items were completed by October 14.³⁷ At the end of the month, Belin, a skilled draftsman, sent a roll of drawings of the fort to Colonel Totten.³⁸ These drawings, together with a set of "detailed drawings" that he was working upon on November 13, provide the most complete record of Fort Mifflin's building existing at that time (see photocopy).

Expenditures for 1838 recorded in the annual statement on November 2, 1839, listed a total of \$66,084.93 for work performed at the fort.³⁹ Four days later it was ready to receive a garrison, and a twenty-four pound cannon had been discharged five times "... to test the stability of the pintle blocks."⁴⁰ Lieutenant-Colonel Rene E. DeRussy of the Engineers had noted that during the year "...Forty-nine Stone Gun Traverses and plinth blocks..." had been installed.⁴¹

From the decade of the 1840s come scattered bits of information regarding Fort Mifflin: a brick commissary was built in 1842,⁴² and Colonel Totten reported in 1845 that the "...fort is now capable of making a tolerable defense, and is occupied by a garrison."⁴³ In January of that year, Lieutenant Henry Benham inspected the dikes and walls surrounding the fort, and sent a detailed account of work performed and required to Colonel Totten.⁴⁴

During the summer of 1851, workmen were occupied with "...white and yellow washing all the buildings and walls throughout the fort...."⁴⁵ The commanding officer, Captain Joseph Roberts, reported leaking roofs on July 29, 1852, noting that "...no slater has examined these roofs since I have been in command...."⁴⁶ A year later, on October 8, 1853, Captain Roberts' garrison was withdrawn.⁴⁷ For the next several years, the annual reports account for small, routine expenditures. Again the old fort lay abandoned, this time until the Civil War.

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1. ASP 1:152-153, December 8, 1801.
 2. "General Return of Fortifications from Massachusetts to Pennsylvania inclusive by Jonathan Williams, Major and Inspector of Fortifications," 1802, Dr.245, Sht.6, Records of the Office of the Chief of Engineers, Record Group 77, National Archives Building. Cited hereafter as NA, RG 77. Dated 1806, an identical report is contained with the United States Military Philosophical Society Papers located at the New York Historical Society. The report, brought to the attention of HABS by Charles E. Peterson, is part of "A General Description of sundry Forts, their artillery & collected from the several Commanding officers" and was supplied by Major T. I. Ulrich Riva. H., commanding officer of Fort Mifflin.
 3. ASP 1:158, February 2, 1802.
 4. Ibid., 1:175-176, February 15, 1805.
 5. Ibid., 1:194, February 18, 1806.
 6. Rochefontaine to Jefferson, January 13, 1805, Daniel Parker Papers Box 6, Historical Society of Pennsylvania, Philadelphia.
 7. May 13, 1807, File 58510, Buell Collection 1801-1819, NA, RG 77, Microfilm Publication M417, roll 1, frame 107.
 8. Ibid., May 20, 1807, 1/110-112.
 9. Lewis, 25.
 10. October 15, 1808, James Read to William Linnard, Consolidated Correspondence File 1794-1915, Box 662, Records of the Office of the Quartermaster General, Record Group 92, National Archives Buildings. Cited hereafter as NA, RG 92.
 11. ASP 1:237, January 6, 1809.
 12. Ibid., 1:246, December 21, 1809.

13. PA, First 12:407-412: 1856 resume.
14. Ibid., April 4, 1813.
15. Lewis, 37.
16. June 20, 1815, Captain S. Babcock to Colonel J.G. Swift, Buell Collection, NA, RG 77, M417, 2/563.
17. Ibid., December 4, 1815, same correspondents, 2/612.
18. November 6, 1819, Linnard to Jessup, NA, RG 92.
Of related interest is a letter of October 24, 1819, from Captain John Jones, assistant deputy of the quartermaster general's office, to William Linnard, regarding plans and data of other hospitals, including those at Fort Severn in Annapolis and Fort McHenry in Baltimore.
19. Lewis, 39.
20. October 31, 1820, Major Babcock to Colonel W.K. Armistead, "Engineers", 475, Letters received 1879-1825, NA, RG 77.
21. Ibid., October 9, 1824.
22. September 15, 1826, I.D. Barnard to James Barbour, PA. First 5:670.
23. Ibid., September 20 and October 6, 1826, Alexander Macomb to I.D. Barnard.
24. February 19, 1835, H. Binney to Secretary of War, B-2305, Letters Received 1826-1837, NA, RG 77.
25. ASP 5:517, February 19, 1835, Charles Gratiot to Secretary of War.
26. January 13, 1836, Captain Richard Delafield to B-General Charles Gratiot, D-1760, Letters Received 1826-1837, NA, RG 77.
27. Ibid., January 20, 1836, same correspondents.
28. Ibid., November 22, 1836, same correspondents, D-2033.
29. ASP 6:847, November 28, 1836.
30. November 28, 1836, Delafield to Gratiot, D-2041, Letters Received 1826-1837, NA, RG 77.
31. Ibid., March 29, 1837, same correspondents D-2169.
32. ASP 7:632, November 28, 1837.

33. Ibid., 7:580, December 2, 1837.
34. January 31, 1839, Barnard to Totten, 182, Letters Received 1838-1866, NA, RG 77.
35. Ibid., August 31, 1839, B-396.
36. Ibid., October 1, 1839, B-425.
37. Ibid., October 14, 1839, B-437.
38. Ibid., October 31, 1839, B-456.
39. Ibid., November 2, 1839, B-456.
40. Ibid., November 6, 1839, B-462.
41. Ibid., November 13, 1839, D-694.
42. January 2, 1843, Tompkins to Jessup, Consolidated Correspondence File 1794-1815, Box 662, NA, RG 92.
43. PA, First 12:407-412 : 1856 resume.
44. January 30, 1845, enclosed in June 13, 1845, Benham to Totten, B-2384, Letters Received 1838-1866, NA, RG 77.
45. August 18, 1851, Best to Jessups, NA, RG 92.
46. Ibid., July 29, 1852, Roberts to Crosman.
47. PA, First 12:407-412 : 1856 resume.

CHAPTER FIVE

NEGLECT AND REDISCOVERY: 1860 TO PRESENT

The fortifications board, continuing its work on the harbor defense network throughout the 1830s and '40s, had by 1850 projected almost two hundred fortifications. ¹ Ungarrisoned since 1853, Fort Mifflin maintained its place as a "secondary barrier" in the fortifications of the Delaware River with Fort Delaware on Pea Patch Island serving as the primary defense. Beginning in 1861, Philadelphia newspapers encouraged the fortification of Fort Mifflin, described as "much dilapidated." ² The Philadelphia Inquirer of May 3, 1861, described the unprepared condition of the fort:

The barracks of this fort have been furnished with cooking utensils, beds, bedding, &c, and a fresh supply of provisions are sent down daily. The commander's quarters, located near the center of the fort, have also been furnished. They have sixty-six guns, although only three of them have been placed on gun carriages and prepared for immediate action. They have thirty thirty-two pounders, and nine first-class guns, but are deficient in gun carriages. A large number of them, constructed of cypress, are lying in the store-room, condemned and pronounced unfit for use. No time should be lost in putting this fort in repair.

By September, 1861, the reconditioning of the fort had begun, and in January, 1862, \$25,000 ³ was appropriated by the House of Representatives for Fort Mifflin.

The District Engineer's annual report of 1862 sent to Chief Engineer Totten noted that considerable work was taking place at Fort Mifflin. The parapets of the main escarpment and demilune had been removed and replaced by brick and were completed with flagging stones. The ramparts were being sloped and sodded. Accommodating the southwest and east scarp construction, the terreplein had been lowered and traverse stones were raised and repaired. The old magazine was repaired and refloored and a ventilator was constructed. Concrete floors were laid in the casemates, which were whitewashed. The shot furnace received a new zinc roof. New window sills were constructed for the Artillery Shed which also had its columns reinforced and its exterior repointed and yellow washed, like the Commissary and the Smith's Shop. The latter was also repaved with brick. In addition, eleven twenty-four pounders at the southeast, thirteen twenty-four pounders at the southwest and nine thirty-two pounders at the demilune were listed as ordnance. ⁴ Commemorating this work a marble was placed inside the southeast sally port and is inscribed:

REPAIRED
1861 x 1862
S. M. Stanton
Secretary of War
Gen. J. R. Totten
Chief Engineer

A drawing dated June 26, 1863, (CGM #79) submitted details for "15-inch guns to be mounted in the Fort and Demi-lune." In the early fall Lieutenant-Colonel Henry Brewerton requested of General Totten permission to put up temporary structures for the employees of the Engineer Department; his long-range plan was to employ prisoners of war who had taken the oath of allegiance.⁵ The annual report for the year noted that the entire scarp wall had been repaired and repointed and that portions of coping had been restored. The "main gateway" was repaired and a retaining wall was constructed adjoining the casemates. Retaining walls were also built at the rear of the Officers' Quarters, minor work was completed at the "southwest" entrance, and the Artillery Shed's brick paving was taken up and relaid.⁶

Lt. Col. Brewerton of the Corps of Engineers wrote on April 23, 1864, that "the Soldiers' Quarters and other buildings at Fort Mifflin" were in a "... perfect state of repair." Brewerton proposed on August 3 to apply the Congressional appropriation of \$20,000 "...to the completion of the platforms of the 15-inch guns, and the re-enforcing of the old platforms, and to commence the construction of a new main magazine...."⁸ Brewerton sent drawings for the new magazine later in the summer (CGM #80) showing various proposed locations.⁹ Construction had begun by July, 1865, when Major C.S. Stewart reported that "stone cutters [were] cutting traverse stones" and that "Brick Masons [were] turning arches of [the] passage of [the] magazine."¹⁰ Though many drawings and proposals for various projects were submitted in the later part of the decade, the most important were those of Lieutenant Colonel Charles S. Stewart. Measured drawings prepared in 1868 included a plan (see photocopy).

At the beginning of the 1870s, certain buildings at the fort were requested for use by the Corps of Engineers during the course of their modifications of the works at Mud Island.¹¹ A project submitted on July 19, 1870, proposed extra artillery at the water battery and in the southeast redans. This detached battery, referred to as the "High Battery," was in progress at the time of the 1871 annual report, and work continued until appropriations stopped in 1875, leaving it unfinished. The 1871 report also mentioned that "The Quarters, Barracks and Hospital building have been thoroughly cleansed, interior and exterior, and whitewashed..." In addition, "the main ditch of the Fort, and the minor ditches have been excavated, and the muddy deposit removed therefrom. A double sluice for supplying the ditches with fresh water, and also for draining off the water from the same as required, has been built and placed in position under the embankment in Delaware River front, north of Demi-lune." It was reported that "...it is proposed to construct three (3) 15" gun platforms, and two (2) magazine traverses, and widen the parapet and terreplein of the lower face of the demilune, to construct five (5) 15" gun platforms and two (2) magazine traverses in the exterior battery of the work, and the storage magazine in the demi-lune." Finally, an appropriation for the year ending June 30, 1872, at Fort Mifflin was indicated as \$81,000 to complete the works, estimated to cost a total of \$157,413.¹²

Work on the High Battery was the chief subject of the 1873 annual report which also noted the "...construction of fence on south boundary line; removal of old unservicable magazines; repairing sluice, wharf and public buildings." It was also reported that the "The Public buildings have been yellow and whitewashed. This includes the Hospital building outside the works and used for a mess house for Engineer employees. Slight alterations have been made in the interior of the building; a large tank has been erected near the house for furnishing ample supply of good water." The report further stated that "Fort Mifflin will be prepared during the year to mount seventeen large guns; being nearly all that are proposed for that position which is marshy and low." The report continued by noting the complete work: "A stone revetment has been placed along the dyke of the back channel; material has been received for embanking services magazines and battery in the demi-lune, and for construction of gun battery south of the Fort; ditches have been cleaned, a dike along the south boundary line nearly constructed, and minor ditches made for drainage.... Preparations have been made for the delivery of earth and sand for formation of rampart and parapet gun-battery." ¹³ Proposed work for the year ending on June 30, 1874, included "work to complete the exterior and south demilune batteries, and to begin both the battery on the north face and the new Storage magazine in the demilune." Continuing, the 1874 annual report also noted that the south battery of the demilune was completed. ¹⁴ The same project was the subject of the 1875 annual report which also mentioned that "The construction of the torpedo casemate has commenced, ... The slopes of the exterior battery have been graded and the earth covering nearly completed; the main exterior slope has been seeded for grass." ¹⁵

At this time, the ambitious harbor defense program of the early nineteenth century was terminated and many fortifications, like Fort Mifflin, suffered from a lack of funds and disrepair; the United States was at "...perhaps the lowest point in its defensive strength since 1812...." ¹⁶ In the period circa 1860-1877, \$208,700 had been expended on the additions to and maintenance of Fort Mifflin. ¹⁷ After 1876, however, only minor repairs were reported for several years. ¹⁸ At the end of the 1870s, storm damages were reported to the dikes, bridges, and frame structures, the tide having "...attained the unprecedented height of 11' 3" above low water...." ¹⁹ The annual reports for the decade of the 1880s list only minor repairs and requests for funding the proposed completion of the High Battery, still unfinished in 1884, and the addition of a gallery to the torpedo casemate. ²⁰ No allocations were made and it was considered "... in its present condition ... incapable of effective operations against modern ordnance and ships at war." ²¹ Though a brief flurry of construction occurred during the Spanish American War in 1898, the drawings of the period generally note every detail of armament, but reveal little new architectural information (see photocopy). The last drawing of an official nature is dated January 20, 1903. In 1904 the fort armaments were dismantled, leaving the property to be used as a storehouse in connection with the Engineer Department of the Army operating a dredging program on the Delaware River. The naval magazine operations continued through World War I.

The beginning of the present century, however, saw a revival of interest in the fort and its historical associations. The complex was declared a national monument by the United States Army, and by Executive Order No. 27 it was put under the jurisdiction of the Corps of Engineers July 17, 1915.²² Fort Mifflin was the subject of several historical studies in the 1920s, including ones by Frederick Shelton, Henry D. Paxon, and others, in an effort to arouse public interest in its restoration. A report prepared for the Numismatic and Antiquarian Society of Philadelphia in 1921 recommended that the fort be turned over to a federal, state, or city agency and be administered by a private organization. It was concluded that "If this is not done, the prospects are that the fort will be continued as it is for the indefinite future, inaccessible to the public at large, unknown, not particularly kept up, and slowly disintegrating."²³

The result was that in 1930 the War Department authorized the District Engineer, Earl I. Brown, "to repair and restore this historic landmark." Brown reported in 1932 that "...all the buildings have been thoroughly renovated inside and out, the ground cleared, and the walls surrounding the fort in first-class condition...."²⁴ On November 14, 1962, Fort Mifflin and 41.9 acres were transferred from the United States Department of the Army, through the General Services Administration, to the Commonwealth of Pennsylvania, which subsequently deeded the fort to the City of Philadelphia. The city appropriated the sum of \$75,000 to "arrest decay" and open the fort to the public. In 1969 permission was officially granted to the Shackamaxon Society, Inc., to administer the fort for the benefit of the public under the auspices of the Department of Recreation, City of Philadelphia. The Storehouse (Commissary) was renovated to provide public services and the fort was opened under the Society's supervision. The fort was designated a National Historic Landmark in April of 1970 by the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments, Department of the Interior. In July, 1977, the City of Philadelphia's Department of Recreation assumed administration of the site.

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1. Lewis, 31.
 2. Philadelphia Inquirer, April 19, 1861.
 3. Ibid., September 10, 1861, and September 26, 1861, January 18, 1862.
 4. September 26, 1862, Brewerton to Totten, Letters Received 1838-1866, NA, RG 77.
 5. Ibid., September 23, 1863, same correspondents, B-9967.
 6. Ibid., same correspondents, B-9437.

7. April 23, 1864, Brewerton to Woodruff, 354, Letters Received 1826-1866, NA, RG 77.
8. Ibid., August 3, 1864, Brewerton to Delafield, B-566.
9. Ibid., August 24, 1864, same correspondents, 620.
10. July 5, 1866, Stewart to Delafield, S-9980, Letters Received 1838-1866, NA, RG 77.
11. August 15, 1870, Kurtz to Humphreys, NA, RG 92.
12. June 30, 1871, enclosed in September 8, 1871, NA, RG 77.
13. Ibid., annual report of 1873.
14. Ibid., annual report of 1874.
15. Ibid., annual report of 1875.
16. Lewis, 55.
17. Earl I. Brown, "Important Data Pertaining to Historic Fort Mifflin, Philadelphia, Pa. "United States Engineer Office, 1932.
18. Annual reports of 1877, 1878, 1879, NA, RG 77.
19. Ibid., annual report of 1879.
20. Ibid., annual reports of 1880, 1881, 1882, 1883, 1884.
21. Ibid., annual report of 1880.
22. Brown.
23. Frederick H. Shelton, "Old Fort Mifflin," Proceedings of the Numismatic and Antiquarian Society of Philadelphia 29 (1922):138.
24. Brown.

APPENDIX I

Pennsylvania Assembly Accounts

Excerpt from the
Pennsylvania Gazette
February 23, 1774

supplied by

Charles E. Peterson F.A.I.A.

Abstract of an Account of Fifteen Thousand Pounds granted for the Defence of the City of Philadelphia, and raised by Act of Assembly passed the 9th of March, 1771, as the same was laid out by the Governor and Commissioners, viz.

TO sundry Orders drawn at different times on the Provincial/Treasurer, as follows:

For Expences of Captain Montresor, and the Commissioners to Deep Water Island, at sundry Times,	26 2 25
To Captain Montresor, at twice, --	279 16 1-1/2
To Joseph Galloway, Esq; for Deep Water Island,	416 7 1
To Thomas Palmer and William Dunwick, for cleaning and repairing the small Arms of the Province -	394 4 3
To Joseph Fox, Esq; for Cash paid for Scantling,	18 1 2
To Ditto, for Cash paid for cleaning Cannon, &c,	23 0 6
To William Rush, for Smiths Work, - -	11 8 5 1/2
To John Britton, for Lumber	63 16 3
To Samuel Levis, for Scantling, - - - -	7 0 3
To Wetherell and Cresson, for Lumber, - - -	55 3 3 1/2
To William Pennell, for ditto, - - - - -	34 6 7
To John Morton, Esq; and William Grantham, for Logs for the Fort and Wharff, - - - - -	523 0 0
To John Croxier, and Edward Bonsall, for Carpenters Work, building the House, &c.	145 0 0
To Elijah Dow, for Smiths Works,	40 0 0
To John Inglis, for Lines, &c. for Capt. Montresor	4 7 8
To John Bower, for Porterage of Cannon	0 15 0
To Matthew Clarkson, for Clerkship, &c.	14 18 0
To Samuel Rhoads, jun. for Nails and Glass, &c.	10 7 3
To James and Drinker, for Gunpowder for the Cannon, and for Nails - - -	31 11 0-1/4
To John Read, for Wages, - - -	25 0 0
To Samuel Penrose, for Provisions - -	83 4 11
To Robert Erwin, for Porterage of Cannon, -	8 13 0
To Owen Jones, Provincial Treasurer, for his Commissions, - - -	26 14 7
To John Palmer, for Cash paid by him for Stone, Lime, Lumber, Provisions, Smiths Work, in making and mending Tools for Masons and Labourers Work, mending and repairing the Banks of Deep Water Island, and building a Wharff on the same Island. --Also an Allowance for his Attendance, - -	12,755 0 0
	15,000 0 0

And there still remains to be paid to sundry Persons,

as per Accounts laid before the Commissioners by John Palmer, the sum of - -

L 893 11 4

But as some of those Accounts are not

finally settled with the Persons, the
real Sum may vary somewhat from the same.

The Allowance to the Seven Provincial
Commissioners, at L 15 each,

105 0 0

L993 11 4

JOHN PENN, Joseph Fox,
Benjamin Chew,
Joseph Galloway

Michael Hillegar,
John Morton

January 19, 1774

The House adjourned to Three o'Clock, P.M.
Du, P.M.

APPENDIX II
Selected Biographies

d' Arendt, Heinrich Baron

Appointed as commander of Fort Mifflin on September 23, 1777, by General Washington, Colonel d' Arendt almost immediately became ill and practical control of the fort fell to Lt. Colonel Samuel Smith, officially second in command. D' Arendt was later granted a twelve month leave on August 18, 1778, and ultimately retired "for the benefit of his health" on January 1, 1781.

Sources: Heitman, Historical Register of Officers..., 73.

Jackson, 129.

Bernard, Simon (1779 - 1839)

An aide-de-camp to, and brigadier general under, Napoleon, Simon Bernard was recommended to American authorities by Lafayette after the Battle of Waterloo. He received his military engineering training at the Ecole Polytechnique and designed the fortifications of Antwerp between 1810 - 12. Bernard headed the four-member fortifications board, which had been organized in late 1816 to review the nation's defensive works. By 1818 two members of the board had resigned, leaving Bernard and Major Joseph G. Totten to conceive a plan for the system of coastal defenses which was largely implemented. Bernard returned to France to become aide-de-camp to Louis Philippe, inspector-general of engineers, and finally minister of war.

Sources:

Dictionary of American Biography, ed. Allen Johnson (NY: Charles Scribner's Sons, 1964) 2:223. Cited hereafter as DAB.
Lewis, 37-39.

du Coudray, Phillipe Charles Trouson. (? - 1777)

Du Coudray, an engineer and general in the French army, came to America in early 1777 on a commission negotiated by Silas Deane, the American agent in France. He reviewed the defenses of the Delaware River at Philadelphia during the fall of 1777 prior to the British occupation. Working closely with General Thomas Mifflin, du Coudray suggested alternative river fortifications to General Washington. He drowned on September 16, 1777, when the horse upon which he was mounted leapt off of a ferry that was crossing the Schuylkill River.

Source:

Jackson, 97-112, 427.

Delafield, Richard (1798 - 1873)

The son of a prosperous New York merchant, Delafield graduated from West Point in 1818, beginning a forty-eight year military career. Delafield rose from a second lieutenant (1818) to a final rank of major general and chief of engineers for the United States Army (1864).

Source: DAB 5:210.

de Fleury, Francois Louis Teissidre (1749 - 1794)

De Fleury joined the French army in 1768 and came to America with other French military engineers in February, 1777. On May 22 he was appointed Captain of Engineers. Serving at Brandywine, de Fleury was promoted to Brigade Major in October, 1777. He was wounded in the Battle of Germantown and subsequently assigned to direct fortification of Fort Mifflin in mid-October, following the death of du Coudray. De Fleury fought for the American cause until September, 1779, when he was granted leave and returned to France. He was the only foreign officer to receive recognition for courage during the Revolution, and was awarded a special medal. Re-entering the French army, de Fleury returned to America under Rochambeau, serving until the war's end. He remained in the French army until 1792 and died in 1794.

Source:

Peter J. Guthorn, America Maps and Map Makers of the Revolution.
(Monmouth Beach, N.J. : Philip Freneau Press, 1972), 22.

Hazelwood, John (1726 - 1800)

A revolutionary naval officer, Hazelwood was born in England and became a mariner at an early age. By 1753 Hazelwood was based in America as the commander of various ocean-going merchant ships. In July, 1775, he assisted in the placement of the chevaux de frise in the Delaware and on September 6, 1777, he was placed in full command of the Pennsylvania state navy. During the siege of Fort Mifflin in October - November, 1777, Hazelwood served the American cause with great distinction.

Source: DAB 8:476-477.

L' Enfant, Pierre Charles (1754 - 1825)

L' Enfant, an experienced military engineer with some architectural training, had volunteered for service in America in December, 1776, and sailed with Colonel du Coudray in February, 1777. After serving at Valley Forge and being promoted to first lieutenant of engineers at Savannah in October, 1779, he was captured by the British at Charleston in May, 1780. Released in 1782, L' Enfant served briefly on the American frontier before resigning from the American service in 1784.

Working in New York City, he was commissioned in 1787 to design Federal Hall for the new United States government. Later he was invited by Washington to make the survey and prepare a master plan for the new Federal City, yet eventual difficulties with the Commissioners of the Federal District ended with his resignation in 1792. Subsequently he accepted the invitation of Alexander Hamilton and Robert Morris to plan a manufacturing center at Paterson, New Jersey, yet the enterprise failed. Continuing to work under the patronage of Morris, L' Enfant designed an elegant residence for him in Philadelphia between 1793 and 1797. Never completed, the house was demolished in 1801. Also during this time, in 1794, L' Enfant directed the reconstruction of Fort Mifflin. The later years of his life were filled with other incomplete projects and bitter disputes regarding his claim for fees connected with his work at the Federal City.

Source: DAB 9:165-169.

Linnard, William (d. 1835)

Linnard, a Captain in the Pennsylvania Artillery Company Militia in 1779, was listed on the Philadelphia Carpenter's Company roster of 1786. He entered the Quartermaster General's office in 1812 and became a colonel in 1813.

Source:

Heitman, Historical Register of Officers..., 352.
_____, Historical Register and Dictionary of the United States Army, from its organization, September 29, 1779, to March 2, 1903 (Washington: GPO, 1903; reprint ed. Urbana: University of Ill. Press, 1965), 635.

Mifflin, Thomas (1744 - 1800)

Thomas Mifflin, a wealthy Philadelphia Quaker merchant, was a member of the Continental Congress, a revolutionary war officer and later, the Governor of Pennsylvania. In 1775 Mifflin was appointed General Washington's first aide-de-camp, Quartermaster General of the Continental Army, and given the rank of colonel. He was promoted to Brigadier General in May, 1776, and to Major General in February, 1777. Resigning these commissions in October, 1777, Mifflin became a member of the Pennsylvania assembly. He later became a member of Congress (1782-84), President of the Supreme Executive Council of Pennsylvania (1788-90), and Governor of Pennsylvania (1790-99) (three terms). In 1795 the fort on Mud Island was officially named after Governor Mifflin.

Source: DAB 12:606-608

Montresor, John (1736-1799)

Montresor was born in Gibraltar in 1736, the son of Colonel James Gabriel Montresor, a British engineer who saw active service in America during the Seven Years' War. Receiving some engineering training from his father, John first came to America in 1754 with the elder Montresor, who had been selected as chief engineer for Braddock's army. At that time John was appointed an additional engineer to Braddock as well. During the 1750s and 1760s, Montresor saw active service in America with the British army including survey work of the St. Lawrence River and involvement with the fortifications at Detroit. He designed Fort Mifflin in 1771 and supervised construction until 1774, when the British halted work on the fort. In 1777, Montresor directed the British attack on the fort.

Source: DAB 13:101-102.

Poussin, Guillaume [William] Tell (1794 - 1876)

A Frenchman who was an outstanding early nineteenth-century cartographer, Poussin entered the U.S. Department of Engineers as a captain in 1817 and resigned as a major in 1832. His 1819 drawing of Fort Mifflin provides an important record. He returned to France and wrote extensively on the United States. A translation of The United States; its power and progress was published in Philadelphia in 1851.

Source: Heitman, Historical Register and Dictionary..., 802.

duPortail, Louis Lebicque

A French military engineer, duPortail became chief engineer for the Continental Army and was commissioned colonel in 1777. Serving in five campaigns during the Revolution, his engineering expertise served him well, instilling confidence in General Washington. After the siege of Yorktown, duPortail was promoted to major general.

Source: Heitman, Historical Register of Officers..., 208.

RocheFontaine, Etienne Bechet (1755-1814)

Etienne Bechet, the Sieur de RocheFontaine, received his engineering training in the Vauban school of France. On the recommendation of General du Portail and Benjamin Franklin he was appointed a captain in the Corps of Engineers in September, 1778. RocheFontaine served under Washington throughout 1779-1780, and played a significant engineering role in the Siege of Yorktown in 1781, for which he was promoted to major. Returning to France after the war, RocheFontaine remained in the French army, serving for a while in Santo Domingo, until the French Revolution. Fleeing the country in 1793, he made his way back to the United States, became a naturalized citizen and rejoined the army. In 1794 RocheFontaine was appointed as a civilian engineer by President Washington to fortify ports and harbors in New England. In February, 1795, RocheFontaine, along with Tousard and other French engineers, was commissioned a lieutenant-colonel in the newly created Corps of Artillerists and Engineers. It is about this time that RocheFontaine was involved in the works at Fort Mifflin. In June, 1795, he took command of the new Corps at West Point and began organizing military school. By May, 1798, President John Adams, in response to a growing wave of anti-French sentiment, forced RocheFontaine's retirement from West Point.

Source:

Raleigh B. Buzzaird, "Washington's last Chief Engineer, Etienne Bechet, Sieur de RocheFontaine," The Military Engineer (November-December, 1976), 452-455.

Smith, Robert (1722 ? - 1777)

Robert Smith, born in Glasgow, Scotland, was a prominent architect builder in colonial Philadelphia. His works include Nassau Hall at Princeton, New Jersey (1754-56), St. Peter's Church, Philadelphia (1758), and America's first insane asylum, built at Williamsburg in 1770. Smith was deeply involved in the construction of Carpenter's Hall, Philadelphia (1770-74) and had built a house for Benjamin Franklin (1764-65). In addition to the design of the chevaux de frise, Smith worked on other projects for Philadelphia's defense. At his death, he was directing construction of the barracks at the Billingsport fortification.

Sources: DAB 17:335-336

Charles E. Peterson, "Carpenter's Hall," in Transactions; The American Philosophical Society, 43:119-123.

Smith, Samuel (1752 - 1839)

Born in Carlisle, Pennsylvania, Samuel Smith spent his youth in Baltimore where his father had a counting house. After attending an academy in Elkton, Maryland (1765-67), he entered his father's business. Upon the outbreak of hostilities with Britain, Smith organized a company of volunteers and participated in the Battle of Long Island and was with Washington at Valley Forge. After Colonel Henry d'Arendt became ill, the practical command of Fort Mifflin was assumed by Smith, who directed the American resistance until he was injured on November 11, 1777, during the British bombardment. Smith, who was twenty-five years old, received a sword and the thanks of Congress for his service at Fort Mifflin. After the war Smith became a successful land speculator as well as a seasoned politician, serving over forty years in Congress, both as a representative and senator from Maryland.

Source: DAB 17:341-342.

Totten, Joseph G. (1788-1864)

Totten graduated from West Point in 1805 and was commissioned a second lieutenant of engineers. Resigning in 1806 to work on the systematic survey of the Northwest Territory, he was reappointed in 1808, receiving promotions to lieutenant (1810) and captain (1812). During this same period he also served as assistant engineer for the harbor defenses in New York City. Totten saw active service during the War of 1812, and later received promotions to major (1818), lieutenant colonel (1828) and colonel (1838). Also in 1838, he became Chief Engineer of the Army and inspector of the U.S. military academy. As a member of the fortifications board, formed in 1816, and as Chief of Engineers after 1838, Totten had a longstanding interest in Fort Mifflin. He also was a member of the Lighthouse Board, a group instrumental in establishing and maintaining a system of coastal lighthouses (1851-1858, 1860-1864). During the Civil War, Totten supervised defensive works surrounding Washington D.C. He was promoted to brigadier general in 1863 and, the day before he died, was promoted to major general.

Source: DAB 18:598-599.

Tousard, Louis (1749-1817)

The son of a high-ranking officer in the army of Louis XV, Tousard trained at the academy in Strasbourg and later received specialized instruction in artillery and fortifications. In 1777 he came to America with duCoudray and served under Lafayette as an artillery officer in the Canadian expeditions and in the battles of Brandywine and Germantown. In August, 1778, he was wounded in an engagement in Rhode Island, losing his right arm. For this service, Tousard received a life pension from Congress and the rank of lieutenant-colonel. Returning to France because of his wound, Tousard was in Santo Domingo by 1784 with a commission of lieutenant-colonel in the Regiment du Cap, acquitting himself ably against a slave uprising. In a subsequent dispute with the civil commissioners of the French National Convention sent to Santo Domingo, he was accused of counter-revolutionary activities, arrested and imprisoned in France. Released in 1793 through the intervention of the American minister, Tousard returned to the United States. In 1795 he was reinstated into the U.S. Army and given the rank of major in the Second Artillery. During the summer of 1797, Tousard assumed command at Fort Mifflin, superintending its fortification and using the Fort as headquarters from which coastal inspection trips were made. Tousard was still chief inspector of fortifications in December of 1800, at which time he was appointed to direct the creation of a military school at West Point, a post he held for over a year. By September, 1802, he was again fighting slave insurrections in Santo Domingo for the French. During his later years he served as France's chancellor of commercial relations in New Orleans and as vice counsel in Philadelphia. He died in Paris in 1817. Tousard's book, The American Artillerist's Companion, was begun in 1795 with the encouragement of George Washington. Published in three volumes (1809-1813), it was adopted as a textbook at West Point in 1816.

Sources: DAB 18:605-606.

Norman B. Wilkinson, "The Forgotten Founder of West Point," Military Affairs 24 (Winter 1960-61): 177-188.

Williams, Jonathan (1750-1815)

Jonathan Williams was the son of a prosperous Boston merchant and nephew to Benjamin Franklin. Educated in London, he developed a business expertise at an early age and had joined Franklin in France by 1776 where he acted for a time as the American agent at Nantes. Williams remained in Europe in various capacities until he returned with Franklin in 1785. Settling into business at Philadelphia, Williams soon acquired a reputation as a man of many parts, serving in various offices of the American Philosophical Society. He had gained some knowledge of military fortification in France, and, having attracted the interest of President Jefferson through his private interests and researches, he was appointed in 1801 "inspector of fortifications and superintendent at West Point," becoming director of military education and succeeding Louis Tousard. Williams inspected Fort Mifflin in 1802 and 1807 and his detailed accounts provide the best records of the fort at that time. Handicapped by a lack of funding for books and an inadequate staff, he resigned in 1803 but returned to office with Jefferson's persuasion in 1805, with the rank of lieutenant colonel. Elected to Congress in 1814, Williams died before he was able to assume his seat.

Source: DAB 20:280-282.

APPENDIX III

Memoir on the progress of the operations,
repairing Fort Mifflin during the
Year ending 30th Sept. 1836.

From the September 30, 1836, letter from
Delafield to Gratiot, D-2033, Letters Received
1826-1837, NA, RG 77.

In December 1835 the necessity existed of putting some positions on the Delaware in such a State of defence, as would protect Philadelphia against an enemy approaching by Water. Not a gun was there either mounted or available to be mounted by the Government on the Delaware, nor was there a single Battery behind which a gun could be mounted that would either protect it, or the Artillerist to serve it-- As the most advantageous for the effectual defence of the River, the old site and work of Fort Mifflin was selected-- Situated on an Island below the mouth of the Schuylkill, and only to be approached by vessels drawing less than 20 feet water-- it was susceptible of defence, and of being fitted to protect and guard the channel in less time than any other point on the Bay or River. This work was commenced during the Collonial government; acted a conspicuous part under Col. Smith of Baltimore during the Revolution; and under the administration of Mr. Adams (Senr.)--was considerably enlarged, its defects as proved during the Revolution corrected; and continued to be occupied untill about the year 1828, when it was abandoned and then left to go to ruin and decay-- It appears to have been materially injured in its defence during its Military occupation by some commanding officer's having caused an Ice House to be formed in the salient angle of a Bastion and the entire demolition and removal of parapets and rampart of the salient angle of the advanced Battery, throwing open the main gateway and subjecting to an enfilade fire the most efficient Battery in the Work --

An examination of the work proved the excellence of the masonry and the fidelity with which it had been executed, the Scarps remained in good order, excepting the pointing and some few courses of Brick where the coping had either been displaced or none put on -- The parapets and Ramparts formed entirely of earth, had considerably diminished and washed out of shape and form--and every part of wood work, forming the platforms for gun-carriages, gateways, sally ports, magazine fixtures, casernes, and quarters for officers and men, entirely rotten, and unfit for use--even to the roofs, and floors of the quarters-- And the Ditches were filled with weeds, reeds, and earthy matter-- The first object was to fit up the Magazines, close all the gateways and sally-ports--and prepare a battery to receive an armament the moment the Navigation of the Delaware was free of Ice-- The second day after the order was received to put this work in a state of defence--the Delaware River closed; thus making the position extremely difficult of access. Mechanics, Labourers, Tools, Subsistence Stores, Lumber and other Materials had all to be transported by land from Philadelphia across the Schuylkill, and then across the channel separating the Fort from the Delaware Shore, in

small parcels carried a considerable distance by hand, and then in batteaux only large enough to convey four hundred lbs (about) at a trip-- The severity of the season was unprecedented, The cold extreme, and heavy snow storms seven weeks in succession covered up the frozen ground, all of which had to be removed, that the earth might be obtained wherewith to form the parapet of the batteries,--So hard was the ground frozen, that it could only be worked with axes, crow bars and pick axes, and piled up in the ramparts, as so many masses of rock- The work was persevered in during the whole winter under these circumstances, and by the opening of the Navigation a battery was ready to receive nine thirty two pounders--The guns for the work were on board vessels frozen up in the Delaware, and reached the Fort with the first breaking up of the river--by which time also the magazines were in order, gates of the Fort constructed, and platforms made for forty guns--when the necessity for immediate defence ceased, and the work closed until July--An appropriation having been made for repairs and contingencies of Fortifications-- this work was recommenced, and all part have since been thoroughly repairing and putting in as good a condition as it ever was.

About the middle of July a force of Labourers and mechanics was organized and the labour applied uninterruptedly to the date of this memoir in forming the Ramparts and parapets of the advanced work and corps-de-place, with earth excavated from the ditches of the Fort that have been widened and deepened to give the requisite quantity for the embankments-- The services of Mechanics were applied to rebuilding the Officers and Soldiers quarters, including floors, lathing and plastering, and roofing; doors, windows, sash and casing--And pointing all the masonry of the Scarps, constructing 416 running feet of Scarp two feet in height to make it uniform with other parts of the work, & raising the walls of the Magazine and covering it with earth.

The quantity of work done consists principally in the excavation of 14192 Cubic yards of earth from the ditches-- The formation of 778 running yards of Ramparts requiring 9282 Cubic yards of earth, with interior and exterior Slopes of the parapets sodded-- The laying of 111,680 Bricks in scarps of the work & walls of the magazine. The roofing with zinc of 14365 square feet--The entire inside work of a building 60 feet by 40 another 80 by 20 another 116 by 20, another fitted up as a depot for implements of the Armament of 20 by 45 and the pointing of 2660 square yards of scarp wall.

Such is the present state of the repairs to this work that the whole will probably be completed this fall, unless it should be clearing up and draining of the Terre pleine of the Fort-painting the wood-work and the erection of gun sheds for such artillery and carriages as shall not be mounted in battery-and that time may not permit to be perfected this fall--

All of which is respectfully
Submitted by your ob't Servt
Ricbd. Delafield
Captn of Engineers

To Brigdr General
Charles Gratiot
Chief Engineer

Philadelphia Sept 30th 1836

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CATALOG OF GRAPHIC MATERIAL

Within the Catalog, the entries are arranged alphabetically by location and chronologically under each repository. The format for the entries is: title (enclosed in quotes when taken directly from the original, otherwise the title by which it is filed or cited); delineator; date; annotations; source. The published material listed at the end of the Catalog includes only rare or significant records. Further information may be found in the Bibliography.

ANN ARBOR, MICHIGAN

1. "To his EXCELLENCY Sir HENRY CLINTON K.B. General and Commander in Chief of his MAJESTY'S Forces, within the Colonies laying on the Atlantic Ocean, from Nova Scotia to West Florida inclusive, &c. &c. &c.;" John Montresor; undated; University of Michigan, William L. Clements Library: Clinton Collection 252.
2. "Plan of the general attack on Fort Mifflin the [10-16] of [November, 1777]. The Rebels evacuated it and burn'd the barracks and line of pickets about 11 oclock [?] at night, taken in possession early next mornng;" Simon Fraser; undated; University of Michigan, William L. Clements Library.
3. Colonel John Montresor; John Singleton Copley; 1771; Detroit Institute of Arts.

ENGLAND

4. Delaware River Forts; unsigned; Red Bank and Billingsport to Chester, note about siege; Alnwick, Duke of Northumberland Collection (cited in British Maps of the American Revolution by Peter J. Guthorn).
5. "A SURVEY of the CITY of PHILADELPHIA & it's Environs comprehending the Neck formed by the Rivers of Delaware & Schuylkill; together with Province, Carpenters, & Mud Islands, & the several Batteries & Works constructed thereon;" John Montresor; December 15, 1777; London, British Museum, "The Crown Collection of Photographs of American Maps," by Archer Butler Hulbert, Vol. V (cited in British Maps of the American Revolution by Peter J. Guthorn).
6. "Sketch of the river at about 42 N. Showing the position of boundry markers;" Samuel Holland; December 14, 1774; London, Public Record Office: C.O. .323/29f.49 (cited in British Maps of the American Revolution by Peter J. Guthorn).
7. "Plan of the River Delaware from Chester to Philadelphia, with the Situation of His Majesty's Ships on the 15th. of Novr. 1777;" John Hunter; Taunton, Hydrographic Department: A9462 (cited in British Maps of the American Revolution by Peter J. Guthorn).

HARRISBURG, PENNSYLVANIA

8. "Map of Delaware river and shore areas from Below Hog Island to South Philadelphia;" L. A. de Genton and Chevalier de Villefranche; c. 1778 (presented to the Pennsylvania Executive Council May 14, 1779 and signed by Villefranche and Louis DuPortail); map of Mud Island with inset and plan of the fort indicating Montresor's wall and ranges of original barracks with overlay plan showing proposal for new fort; Pennsylvania Historical and Museum Commission, Division of Archives and Manuscripts: Records of the Supreme Executive Council (Record Group 27), Records of the Secretary of the Supreme Executive Council (Subgroup), Ville Franche Map for the Defense of the Delaware, c. 1778 (with overlay).

ITHACA, NEW YORK

9. "figure aproximatif de ouvrages des assiegeans. 14 Ibre. 1777;" Major Louis de Fleury [?]; map notations and text in French and English, annotated by George Washington April 1, 1778; Cornell University, Olin Library. Department of Rare Books (Jared Sparks Papers I-537): Rare Map G3701/.S323 M5/1777/.F5b.
10. "figure aproximatif du fort mifflin & des ouvrages des assiegeans. 9th. Ibre. 1777;" Major Louis de Fleury; map notations and text in French and English, including a note apologizing for the drafting done while under fire; Cornell University, Olin Library, Department of Rare Books (Jared Sparks Papers I536): G3701/.S323 M5/1777/.F5b.
11. "figure aproximatif de fort island & des ouvrages des assiegeans. 16 octobre 1777;" Major Louis de Fleury [?]; map notations in French and English, text in French; Cornell University, Olin Library, Department of Rare Books (Jared Sparks Papers I534): Rare Map G3701/.S323 M5/1777/.F5.
12. "fort mifflin in mudy island;" Major Louis de Fleury [?]; undated; map of the fort showing the British attack; Cornell University, Olin Library, Department of Rare Books (Jared Sparks Papers I535): Rare Map G3701/.S323 M5/1777/.F5a.

NEW HAVEN, CONNECTICUT

13. "PLAN of MUD ISLAND and FORT MIFFLIN with the Siege thereof, and its Evacuation the 15th of November 1777. Also Red Bank with the Shoals, Banks, Islands and Flats in that Extent;" Charles Blaskowitz; Yale University Library, Map Collection.

NEW YORK, NEW YORK

14. Sketch plan of the fort; Samuel Smith; undated; Columbia University, Butler Library: Samuel Smith Papers.

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FREE LIBRARY OF PHILADELPHIA

15. "Old Artillery Oven. Fort Mifflin;" Frank H. Taylor; undated; watercolor from northeast of the fort, apparently destroyed but may be inaccurate; Free Library of Philadelphia, Print and Picture Department: Castner Collection, Philadelphia 27, p. 90.
16. Watercolor of the fort; Frank H. Taylor; undated; shows west scarp, partially inaccurate; Free Library of Philadelphia, Print and Picture Department.
17. "Old Fort Mifflin, Philadelphia, Pa.;" undated; colored black and white postcard, view from the south; Free Library of Philadelphia, Print and Picture Department: Castner Collection, Philadelphia 46, p. 18.
18. Photographs of the fort; undated, c. 1925-40; 16 numbered photographs: 228319 (southeast sallyport), 273693 (storehouse), 273694 (soldiers' barracks, storehouse, southeast sallyport, arsenal), 273695 (northwest curtain and sallyport), 273696 (smith's shop), 263580 (Commandant's House with Soldiers' Barracks in background), 254751 (from demilune gun emplacement, showing Montresor wall), 254752 (Fort Mifflin wall and moat), 254753 (northwest sallyport and foot bridge), 254754 (aerial view of fort), 263581 (Commandant's House), 263582 (after alterations, parade ground, soldiers' barracks and officers' quarters), 254750 ("View of

Main Gate before the Erection of the Foot Bridge"), 263583, ("Gun placements and part of Artillery Shed"), 263585 ("Main Gate of old Fort Mifflin - closed. View from inside of Fort), 254755 ("Soldiers' Barracks with corner of Officers' Quarters in rear"). Free Library of Philadelphia, Print and Picture Department: Forts, Philadelphia.

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HISTORICAL SOCIETY OF PENNSYLVANIA

19. "esquisse des forts sur la delaware. forts mercer & mifflin;" Major Louis de Fleury [?]; undated; Historical Society of Pennsylvania, Manuscript Department: AM 602, p. 28.
20. "PLAN OF FORT MIFFLIN ON MUD ISLAND, with the attacks made by the British troops and vessels;" unsigned; undated; Historical Society of Pennsylvania, Manuscript Department: Of 932, [1777].
21. "Mud Island with the Operations for reducing it. 15th Novr:1777;" John Montresor [?]; photostat, map of Mud Island with plan of fort, details of fortifications, notes on various buildings, wall sections, elevation of blockhouse; Historical Society of Pennsylvania, Manuscript Department: Of 932-1777X.
22. "PLAN of the Attacks against FORT MIFFLIN on Mud Island which surrendered 16th Novr: 1777 to the Kings troops under the Command of the Honble: Sir WILLIAM HOWE K.B. General & Commander in Chief. &c. &c. &c.;" John Montresor [?]; ink and watercolor; Historical Society of Pennsylvania, Manuscript Department: Am .6 Rare Books Room, Alcove 5.
23. "THE COURSE OF DELAWARE RIVER from PHILADELPHIA to CHESTER, Exhibiting the several WORKS erected by the REBELS to defend its Passage, with the ATTACKS made upon them by His MAJESTY'S Land & Sea Forces. Engraved by William Faden Charing Cross April 30th, 1778," with inset drawing, "A SKETCH OF FORT ISLAND;" the fort is drawn as a foursquare plan with corner blockhouses; Historical Society of Pennsylvania, Manuscript Department: Of 651*, 1778.

24. "The Delaware River from Philadelphia to Chester, showing the works erected by the Rebels and the location of His Majesty's ships;" William Faden; April 30, 1778; Historical Society of Pennsylvania, Manuscript Department: Of 651*, 1778.
25. "OPERATIONS ON THE DELAWARE 1777-8. Adapted from Faden's Map;" includes list of the American fleet; Historical Society of Pennsylvania: Of 930, 1777-8 and Of 930, 1777-8a.
26. Fort Mifflin, Philadelphia, Pa. 1777-1778; unsigned pen and ink sketch, elevation showing stockade, 2 blockhouses, 6 buildings; Historical Society of Pennsylvania, Manuscript Department: Ba 55, M587.
27. "A PLAN OF DELAWARE RIVER from CHESTER to PHILADELPHIA. Shewing the Situation of His Majesty's Ships &c. on the 15th Novr. 1777;" Lieutenant John Hunter; June, 1779 [?]; Historical Society of Pennsylvania: Of 651*, 1779a, b, c.
28. Diagrammatic map of Delaware River from the mouth of the Schuylkill to Mantua Creek, showing fleet movements by Chillas Lith., Girard Building. 50, So. 3rd St. Philada;" as Catalog 14 without inscription; Historical Society of Pennsylvania, Manuscript Department: OF 651, 1777b.
29. "Accompanying Com. Hazelwood's letter Decr. 9th , 1779 by "Chillas Lith., Girard Building. 50 So. 3rd St., Philada;" map of Mud Island with plan of the fort and locations of various buildings at the fort and on the mainland, photostat of lithograph; Historical Society of Pennsylvania, Manuscript Department: Of 932, [1779] b.
30. "Map of Roads around Philadelphia;" 1779 [?] Historical Society of Pennsylvania, Philadelphia: Am. 602, p. 25.
31. "THE COURSE OF DELAWARE RIVER from PHILADELPHIA to CHESTER with the SEVERAL FORTS and STACKADOES raised by The AMERICANS, and THE ATTACKS made By His MAJESTY'S LAND AND SEA FORCES," with inset drawing, "A PLAN of FORT MIFFLIN ON MUD ISLAND, with the Attacks made by the King's Troops and Vessels" printed in London for William Faden, January 1, 1785, second edition, photostat; The Free Library of Philadelphia, Map Division: Delaware River and Bay.

32. Copy of a print of Mud Island in 1777, from an old drawing made by Colonel Downman of the British Army; undated Historical Society of Pennsylvania, Manuscript Department: Stauffer Collection, V. 6, p. 488.
33. Fort Mifflin 1885, 10 small photos; John C. Browne; 1885; 4 views including the soldiers' barracks, northeast and southwest sallyports, and some remnants of the chevaux de frise; Historical Society of Pennsylvania, Manuscript Department: Boies Penrose Pictorial Philadelphia Collection, Box 9, Forts.
34. "FORT DELAWARE [sic];" Frank H. Taylor; 1920; actually a watercolor of Fort Mifflin from the northeast, with some buildings relocated, includes frame guard house now demolished; Historical Society of Pennsylvania, Manuscript Department: Bb 61, T241b.
35. Cast of tablet over entrance gate, Fort Mifflin; F. H. Shelton; March 1921; photograph, with inch scale, of the carved marble tablet over the parade elevation of the northeast sallyport (a valuable record since the carving has deteriorated); Historical Society of Pennsylvania, Manuscript Department: Print Collection, small, Forts under Mifflin.
36. Fort Mifflin 1929; three photographs: (1) Officers' Quarters, soldiers' barracks, commissary and railroad tracks leading from main gate; (2) entry to bake oven and casemate; (3) commandant's house; The Evening Bulletin November 8, 1929; Historical Society of Pennsylvania, Manuscript Department: Boies Penrose Pictorial Philadelphia Collection, Box 9, Forts.
37. Fort Mifflin 1932, 11 photos, Parade Ground, Buildings, Wall, etc.; Stanley B. Miller; January 12, 1932; Historical Society of Pennsylvania, Manuscript Department: Boies Penrose Pictorial Philadelphia Collection, Box 9, Forts.
38. "Battle at Fort Mifflin, Delaware River, November 1777:" copyright 1932 by Arnold Anderson; Historical Society of Pennsylvania, Manuscript Department: Bb 522, M633.

39. Unfinished detail drawings of the fort; undated, 1937 [?]; 7 sheets, 2 ink on HABS paper, 5 pencil on tracing paper (also 3 blueprints of earlier drawings, 1868, 1871 [?], 1922); Historical Society of Pennsylvania, Manuscript Department: American Institute of Architects Papers, Fort Mifflin.

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MUNICIPAL ARCHIVES, CITY OF PHILADELPHIA

40. Fort Mifflin 1929, December 9, 1929; 14 photographs, negative numbers: 27980 (southeast sallyport), 27982 (stone tablet near southeast sallyport), 27983 (southeast sallyport), 27985 (officers' quarters, barracks, storehouse), 27987 (northeast sallyport), 27988 (barracks), 29990 (officers' quarters), 27995 (commandant's house), 27996 (west magazine), 28003 (northeast rampart, north bastion), 28804 (arsenal artillery shed, commandant's house), 28006 (mess house), 28047 (west scarp), 28049 (south scarp and parade); Philadelphia City Archives, Photographic Collection: Fort Mifflin - 1929.
41. Fort Mifflin - 1930; February 5, 1930; 7 photographs, negative numbers: 28168 and 28168a (panorama of south scarp and parade), 28163 (northeast sallyport), 28170 and 28171 (northeast scarp and sallyport), 28172 (east scarp), 28173 (river bank); Philadelphia City Archives, Photographic Collection: Fort Mifflin - 1930.
42. Fort Mifflin - 1957; Joseph Cuneo; September 4, 1957; 16 photographs, negative numbers - 34407 (officers' quarters), 34408 (smith's shop), 34409 (officers' quarters), 34410 (southeast sallyport), 34411 (arsenal), 34412 and 34413 (commandant's house), 34414 (soldiers' barracks), 34415 (east scarp, southeast sallyport), 34416 and 34417 (soldiers' barracks), 34418 and 34419 (storehouse), 34420 (commandant's house), 34421 and 34422 (northeast scarp and sallyport); Philadelphia City Archives, Photographic Collection: Fort Mifflin - 1957.
43. Photographs of the fort; Margaret R. Maurer and Margaret B. Tinkcom; 1965, 1969; 23 photographs, negative numbers 12391-1 through 12391-23, covering most of the fort, most include people;

Philadelphia City Archives, Photographic
Collection (Department of Records, Photographic
Division): Fort Mifflin.

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44. Mud Island with the Operations for reducing it
15th. Nov. 1777;" John Andre; Henry E. Huntington
Library: HM3089.
45. Approaches to Philadelphia; George Spencer;
undated; map of the Delaware River from
Philadelphia to Derby Creek; Henry E. Huntington
Library.
46. "Redouts near Philadelphia;" John Andre; undated;
Henry E. Huntington Library.

WASHINGTON, D.C.

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47. "A MAP of that part of Pennsylvania now the
Principle seat of WAR in AMERICA wherein may be
seen the Situation of Philadelphia, Red Bank, Mud
Island, & GERMANTOWN on a Scale of an Inch to a
mile;" surveyed by Nicholas Scull, engraved by L.
Jackson; 1777; no indication of construction on
Mud Island; Library of Congress, Geography and Map
Division. G3824. P5A1/1777/.S3 vault.
48. "View of Mud Island before its Reduction 16th
Novr. 1777 under the Direction of John Montresor,
Esqr. Chief Engineer in America taken from the
Dyke in Front of the Six Gun Battery on
Carpenter's Island;" Pierre Nicole; probably a
preliminary drawing for CGM 49. Library of
Congress, Prints and Photographs Division.
49. "A SURVEY of the CITY OF PHILADELPHIA and its
Environs shewing the several Works constructed by
his Majesty's Troops, under the Command of Sir
William Howe, since their possession of that City
26th. September 1777, comprehending likewise the
Attacks against Fort Mifflin on Mud Island, and
until it's Reduction, 16th. November 1777;"
surveyed and drawn by Pierre Nicole, John
Montresor, chief engineer; inset map of the island
with plan of the fort, longitudinal section,
elevations of the commanding officer's quarters
and barracks and a view of the fort from the
shore; Library of Congress, Geography and Map
Division: G3824/.P5S3/1777/.N5 vault.

50. "A PLAN of the ATTACKS AGAINST FORT MIFFLIN on MUD ISLAND Which Surrendered 16th. November 1777 to the King's Troops Under the Command of the Honorable Sir WILLIAM HOWE K.B. General and Commander in Chief &c. &c. &c.;" Ensign Thomas Wheeler; Library of Congress, Geography and Map Division: G 3824/.M337/.S3/1777/.W5 vault.
51. "A SKETCH of FORT ISLAND;" William Faden; undated; the fort is drawn as a foursquare plan with corner blockhouses; Library of Congress, Geography and Map Division: G3792/.D4453/1777/.F3 (Faden 83).
52. "THE COURSE OF DELAWARE RIVER FROM PHILADELPHIA to CHESTER, Exhibiting the several works erected by the REBELS to defend its Passage, with the ATTACKS made upon them by His MAJESTY'S Land & Sea Forces. Engraved by William Faden Charing Cross April 30th, 1778," with inset drawing "A PLAN of FORT MIFFLIN on MUD ISLAND, with the Attacks made by the King's Troops and Vessels;" changes inked in red on an earlier map; another inset "List of the Rebel Fleet;" Library of Congress, Geography and Map Division: G3792/.D44S3/1785/.F29 Faden 84.
53. "PLAN of FORT MIFFLIN on Mud Island with the Batteries on PROVINCE Islands;" unsigned; undated; includes index to buildings in the fort; Library of Congress, Geography and Map Division: G3824/.M537S3/1778/.P5/Faden 86.
54. "PLAN OF Part of the river DELAWARE, from Chester to Philadelphia, in which is mark'd the position of His Maj's. Ships on the 15th. of November 1777. The Obstructions to the Navigation of the river, laid down by the Rebels, are also mark'd;" John Hunter; June 1778; inset drawing of Vigilant and Fury in attack on the fort; Library of Congress, Geography and Map Division: G 3792/.D4453/1778/.H8 Howe 14.
55. "PLAN of the City of PHILADELPHIA and its Environs shewing its Defences during the Yeas 1777. & 1778. together with the Siege of Mud Island on the River Delaware...;" Pierre Nicole; Library of Congress, Geography and Map Division: G 3824/.P5/1778/.N51/Vault.

56. "PLAN of the Property of the United States comprising Fort Mifflin, Mud Island and Old Lazaretto in the 24th Ward, Philadelphia." J.A. Miller, surveyor of the 12th district of Philadelphia, 1860. Survey and Map prepared under direction and superintendence of J.C. Van Dyke, March 6, 1861. Library of Congress, Geography and Map Division.
57. Oil painting of Fort Mifflin; General Seth Eastman; 1872; from Collection of the Architect of the Capitol; Library of Congress, Prints and Photographs Division.

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58. "The Course of the Delaware River from Philadelphia to Chester with the Several Forts and Stockadoes raised by the Americans and the Attacks made by His Majesty's Land and Sea Forces;" William Faden; published March 20, 1779; National Archives, Cartographic Archives Division: RG77, U.S. 234, p. 11.
59. "Fort Mifflin Military Reservation;" State of Pennsylvania; undated, late 18th - early 19th century; National Archives, Cartographic Archives Division: RG 77, Dr. 189, Shts. 4-1 through 4-5.
60. "Mifflin on River Delaware Pennsylvania;" Jonathan Williams; 1802; written description of the fort and armament inventory; National Archives; Cartographic Archives Division: RG 77, Dr. 245, Sht. 6.
61. "Sketch of the Walls and Ditches of Fort Mifflin;" with report of Jonathan Williams, May 20, 1807; plan of the fort indicating outline of new fort enclosure with important accompanying notes; National Archives, Old Military Records Division: RG 77, Buell Collection of Historical Documents Relating to the Corps of Engineers, 1801-1819, 58510/110, 111, 112.
62. "Survey of Land belonging to U. S. near Ft. Mifflin called the Lazarette Barracks;" unsigned; before 1815 [?]; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 1.

63. "Delineation shewing the position of the public piers in the river Delaware...;" unsigned; before 1815 [?]; sheet 3 is a tracing of sheet 2; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Shts. 2, 3.
64. "Plan of Fort Mifflin on a scale of 110 Feet to 1 Inch;" Major S. Babcock; December 4, 1815; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 4.
65. "State of Pennsylvania. Fort Mifflin;" Captain W. Tell Poussin; 1819; plot and sections of the fort; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 5.
66. Alternate schemes for a hospital at the fort; with report of William Linnard, November 6, 1819; two plans and one elevation; National Archives, Old Military Records Division: RG 92, Consolidated Correspondence File 1794-1890, Box 662 (Mifflin, Fort).
67. "Plan of Fort Mifflin;" with letter of Major S. Babcock, November 17, 1821; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 6.
68. "Plan, shewing the distance from the S. W. or Southerly part of the banks near Fort Mifflin, to the pier in the Delaware...;" with letter of J. Roach, February 7, 1826; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 11.
69. Outline plan of the fort; unsigned; undated; unfinished; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 7.
70. "Fort Mifflin as repaired in 1836-37;" unsigned; barbette plan with location sketch; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 8.
71. "Fort Mifflin Buildings & ch." and "Buildings of Fort Mifflin;" Henry Belin; October 3, 1839; plans, sections, elevations; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Shts. 9, 10.

72. "Sketch of the vicinity of Fort Mifflin;" G. Castor Smith; with report of Hartman Bache, December 20, 1849; National Archives, Cartographic Archives Division: RG 77, U.S. 374, No. 44.
73. "Sketch of the vicinity of Fort Mifflin traced from the coast survey;" Engineer Department; September 7, 1853; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 12.
74. "Sketch showing condition of Fort Mifflin, the Dikes...;" with letter of Major John Sanders, July 3, 1854; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 13.
75. "FORT MIFFLIN AND THE VICINITY;" Second Lieutenant Jas. L. K. Morton; February 26, 1855; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 14.
76. "SITE for POWDER MAGAZINE for the NAVY;" Major John Sanders and Lieutenant Turner; April 10, 1855; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 15.
77. Sketch of the vicinity of the fort; with letter of Captain John Newton, April 8, 1859; National Archives. Cartographic Archives Division: RG77, Dr. 47, Sht. 16.
78. "Fort Mifflin, Delaware River. Details of proposed breast-height wall;" Engineer Department; August 31, 1861; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 17.
79. "FORT MIFFLIN. Details of 15" Guns to be mounted in the Fort and Demi-lune;" with letter of Colonel H. Brewerton, June 26, 1863; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 18.
80. "Plan, Sections, and Location of Proposed New Magazine at Fort Mifflin;" with letter of Colonel H. Brewerton, August 24, 1864; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 19.
81. "FORT MIFFLIN Pa.;" with letter of Colonel H. Brewerton, September 1, 1864; proposed location of new magazine; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 20.

82. "Design as modified in Eng'r Dep't;" with letter of Engineer Department, August 26, 1864; modified design for the new magazine; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 21.
83. "Fort Mifflin. Sketch Showing Plan, Sections and Position of New Magazine;" Engineer Department, September 19, 1864; includes notes on the foundation construction, National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 22.
84. Armament inventories for the fort; Colonel Hartman Bache, February 20, 1865; Major C. S. Stewart, July 3, 1866; inventory charts; National Archives, Cartographic Archives Division: RG 77, Dr. 251, Shts. 15-1, 15-2.
85. Proposed office and quarters for overseer, February 1, 1865; National Archives, Old Military Records Division: RG 77, Letters Received 1838-1866, Hartman Bache to Brigadier General Delafield.
86. "Fort Mifflin. Cross section of foundation New Main Magazine;" with letter of Colonel Hartman Bache, February 16, 1865; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 23.
87. "FORT MIFFLIN. Guns mounted, July 1st., 1865. Guns of hand, not mounted. Platforms ready for Guns. Platforms expected to be ready during the year;" with report of Colonel Hartman Bache, September 15, 1865; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 24.
88. "Fort Mifflin. Tracing giving number and position of platforms upon which guns are mounted, June 30, 1866;" with report of Major C. S. Stewart, August 20, 1866; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 25.
89. "Officers Quarters. Soldiers Barracks. Commandant's Quarters. FORT MIFFLIN;" with letter of Major C. S. Stewart, March 7, 1867; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 26.

90. "Fort Mifflin, Pa;" with letter of Major C. S. Stewart, August 13, 1867; argument plan of the fort and inventory chart; National Archives, Cartographic Archives Division: RG 77, Dr. 251, Shts. 15-3, 15-4.
91. "Armament at Fort Mifflin June 30th., 1868;" with report of Major C. S. Stewart; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 27.
92. "No. 1. PLAN OF FORT MIFFLIN SHOWING THE OUTLINE OF THE FORT AND ACCESSORIES" and "SHEET No. 2. SHOWING PLAN, SECTION ETC OF FORT MIFFLIN;" drawn under the direction of Lieutenant Colonel Charles S. Stewart; 1868; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Shts. 28, 29.
93. "Fort-Mifflin Pa.;" with letter of C. S. Stewart, October 25, 1869; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 30.
94. "FORT MIFFLIN;" with letter of Major C. S. Stewart, July 16, 1869; June 30, 1869; National Archives, Cartographic Archives Division: RG 77, Dr. 259, Sht. 56.
95. "FORT MIFFLIN. PROPOSED BATTERY;" October 12, 1869; signed approval by Secretary of War Belsnap; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 31.
96. "Fort Mifflin. Site of proposed Stable...;" U. S. Engineer Office, December 2, 1870; plat, plan, section, and elevations; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 32.
97. "PLAN OF MORTAR BATTERY FOR 6 GUNS...;" Board of Engineers for Fortifications; January 1871; signed approval by Secretary of War Belsnap; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 33.
98. "Fort Mifflin as modified by Board of Engineers for Fortifications to receive King's Depressing Carriage;" July 1871; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 34.

99. "FORT MIFFLIN;" Engineer Department; 1871; location of old and new magazines; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 34¹/₂.
100. "FORT MIFFLIN;" U. S. Engineer Office; November 23, 1871; shows an addition to the stable; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 35.
101. "FORT MIFFLIN, Pa; Plan and Sections of Hospital Building;" unsigned; 1871; includes proposed alterations; National Archives, Cartographic Archives Division: RG 77, Dr. 47, Sht. 36.
102. "FORT MIFFLIN. PA;" March 1871; unsigned; drawings of fort, plan, sections, elevations; National Archives, Cartographic Archives Division: RG 77, Miscellaneous Forts File, Fort Mifflin, Pennsylvania, Shts. 1, 2, 3.
103. "FORT MIFFLIN, PA.;" with letter of Lieutenant Colonel J. D. Kurtz, February 14, 1872; February 1, 1872; National Archives, Cartographic Archives Division: RG 77, Dr. 259, Sht. 16.
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Prepared by:

John A. Burns, Architect
Historic American Buildings Survey
January 1974.

FORT MIFFLIN
ON THE DELAWARE RIVER
~~NEAR~~ PHILADELPHIA, PENNSYLVANIA

Owner: United States Government, under Engineer Corps,
U. S. Army.

Date of Erection: 1798 to 1876.

Architects: Major Peter Charles L'Enfant
Colonel Toussard and others.

Present Condition: Excellent.

Builder: U. S. Army Engineer Corp.

Description of Fort and Materials of Construction:

The extreme outside length of Fort Mifflin's walls from north to south is about six hundred feet; the width, from east to west about four hundred seventy-five feet. The area occupied by the old fort, excluding the outside batteries but including moat, walls and ramparts is about eight acres. The area of the level space within the ramparts is a scant two acres. The gate opening between jambs is twelve feet seven inches. The old wooden gate, of double doors, is built up of three thicknesses of two inch plank, studded and hung on huge wrought iron hinges.

The present existing buildings are as follows:-
Commandant's Headquarters, 35' x 70', built in 1798.

Soldiers' Barracks, 28' x 117', built in 1798.

Officers' Quarters, 28' x 80', built in 1798.

Arsenal and places of Confinement, 24' x 44', built in 1816.

Artillery Shed, 37' x 97', built during Civil War.

Commissary Building, 20' x 56', built during Civil War.

Blacksmith Shop, 18' x 23', built during Civil War.

Main Magazine, 15' x 43', built in 1867.

Torpedo Casement, built in 1876.

Across the moat is a hospital building built about 1812.

The buildings are all built of brick, the Commandant's Quarters stuccoed, and all the buildings white-washed. The Commandant's Quarters is a distinguished piece of design, with one story and an attic, - treated with pilasters, the windows have blinds and ventilators for the attic

occur in the frieze of the entablature. The mouldings show great delicacy and refinement and the building is topped by a cupola. On the interior this building, like all the others, is very simply treated, with very little detail of any sort.

The Barracks and Officers' Quarters adjoin each other and are most attractive, - the former with a one story porch, the latter with a two story collonade, having a balcony with a very interesting iron railing. The windows on the first floor of the Barracks have shutters and those on both floors of the Officers' Quarters have blinds. The interiors of all the buildings call for little comment, having plain plastered walls, wood baseboards and in most of the buildings wood floors. The fireplaces have brick hearths and the mantels are of the simplest design.

The Artillery shed is an interesting example of heavy wood construction of the days of the Civil War, and the Blacksmith Shop still has its forge and bellows and nearly all the original blacksmith's tools.

The Dungeons which are at the southeast part of the fort under the ramparts furnish a striking example of the way prisoners were treated in former days. With hardly any light and exceedingly damp, one or two of them contain large open fireplaces, and in one of the larger dungeons some of the double-deck trestle beds that were used during the Civil War still remain.

History: Fort Mifflin is located on Mud Island approximately seven miles from the center of the City of Philadelphia, just below the point where the Schuylkill River joins the Delaware. In the rear were Carpenter and Province Islands, separated by a channel fifteen hundred feet wide, and to the west was Hog Island. The strategic position of this site was early recognized by the Swedes, who had erected a fort on Province Island in 1647. During the war between England and Spain, in 1762, conferences were held to consider the defenselessness of the City, and plans for a fort were drawn but never executed. Re-newed agitation took place in 1771, and Captain John Montrossor of the Royal Engineers, drew the plans, - work being finally started in 1773. In 1777 after the Declaration of Independence, the Council of Safety took hold of matters and Brig.General Thomas Mifflin, of the Continental Army, and Washington's

first Aide-de-Camp, undertook the completion of the work.

The defense of Philadelphia from the British Navy depended on Fort Mifflin, Fort Mercer, across the river at Red Bank on the Jersey shore, and three lines of Chevaux-de-frise, or sunken sharpened timbers, tipped with iron. This defense was augmented by a few ships of the Continental Navy, then in its infancy.

The British troops, after their victory at the Battle of Brandywine, continued on to Philadelphia, which they occupied on September 26th, 1777, and it was the endeavor of the British fleet to get to Philadelphia also, so that the necessary supplies for a continued offense against Washington and his army could be made.

With this in mind the operations of the British fleet on the Delaware began October 1st, 1777, and by October 20th, they had pierced the first line of defense and were facing Fort Mifflin. In the meantime, the British Army occupying Philadelphia had sent a force of 500 men to erect redoubts on the islands in the rear of the Fort. On October 22nd, a general attack was launched against Fort Mifflin from the British Squadron in the river as well as from the rear. During this attack two of Howe's boats were aground and were attacked, and set on fire by the Americans. The final assault was started on November 10th and maintained for six days and nights without cessation. In this attack two British ships went up the back channel and took positions so close to the rear of the Fort that hand grenades were effective. Finally on the 15th, when not a gun was left standing in position, and only forty men out of about three hundred were left to man the works, the rest being dead or wounded, Major Simeon Thayer, who had taken command after Colonel Smith was injured, evacuated the Fort. Sending the wounded in boats to Fort Mercer, he with the remaining men of the Garrison, after destroying everything of any value to the enemy, set fire to what was left of the Fort and proceeded to Fort Mercer at Red Bank.

Due to the stubborn defense of Fort Mifflin, the active work of the campaign was forced to a close by the setting in of a severe winter, and all the enemy secured was an agreeable City in which to spend the Winter, and nothing was accomplished of moment in subduing the rebels.

After the withdrawal of the British from Philadelphia in 1778, the Fort was repaired and occupied by small garrisons during the remainder of the War of Independence. The Fort did not again take a position of prominence until 1793, when the French privateers began raiding our commerce. At this time five thousand dollars was appropriated and Major Peter Charles L'Enfant, who later laid out the City of Washington, was invited to draw up plans for the Fort's reconstruction. L'Enfant's plan was carried out very slowly and in 1798 the Fort was taken over by the Federal Government. In 1798 Colonel Toussard another famous French engineer, was sent to rebuild the Fort along the lines drawn up by L'Enfant.

Colonel Toussard's work was carried out between 1798 and 1800 and comprises the bulk of the buildings now standing. The Fort did not figure in the War of 1812, although it was thoroughly manned at this time.

At the beginning of the Civil War in 1861, the Fort was repaired and improved. During the rebellion the Forts on the Delaware were used as military prisons, and many Confederate prisoners were confined at Fort Mifflin, the dungeons being still in their original condition. At this time the total armament of the Fort was forty-six guns of two types.

In 1904 the Fort was dismantled and every gun was removed, and in 1915 Fort Mifflin was declared a National Monument, and placed in the care of the United States Army Engineer Corps.

In 1930 the Fort was repaired and restored, so that it now presents the appearance as nearly as possible to the original as planned by Major L'Enfant in 1797.

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Additional Data: Various old plans of the Fort and of the Revolutionary attack in the possession of the U.S. Army Engineer Corps, many of which are in the Commandant's Quarters at Fort Mifflin.

Signed

Joseph P. Stius
District Officer, H.A.B.S.

ADDENDUM TO:
FORT MIFFLIN
Mud Island, Marine & Penrose Ferry Roads
Philadelphia
Philadelphia County
Pennsylvania

HABS PA-1225
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